

The Rosette Gazette

Volume 23, Issue 07

Newsletter of the Rose City Astronomers

July, 2011



Exoplanets and the search for habitable worlds.

By Ken Hose

In 1995 the first extra-solar planet was discovered by detecting the small “wobble” of the host star induced by the orbit of the planet. Since then the number of confirmed planets has increased dramatically to over 500 to date with hundreds more to be announced soon. The characteristics of some of these solar systems have surprised astronomers because they are so different from our own. About one-third of the planets detected so far are about the size of Jupiter with orbital periods of just a few days. Findings like this have caused scientists to re-think how planetary systems form and evolve. One of the main science goals is to find earth-like planets in the habitable zones around their stars. This is the stated goal of NASA’s Kepler Mission. Data from Kepler and other searches will help us estimate the distribution and types of planets in our galaxy and how many planets could potentially harbor life. Most of the planets detected are very large and massive because they are the easiest to detect. The detection technology is evolving and it will become easier to detect earth-size and smaller planets in the future, especially with space-based equipment.

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Ken Hose developed an interest in extra-solar planets two years ago when he found out that some can be detected using amateur-grade equipment. He will review what scientists have learned so far about these planets and the different detection techniques used to find them. He will also cover how improvements and evolution in detection methods will make it easier to find earth-sized planets and how scientists hope to learn more about composition of the planets and their atmospheres. Finally, he will have a few words about several known planets he has been able to detect from his backyard observatory.

All are Welcome! Monday July 18th

New Members Meeting: 6:30 pm General Meeting Begins: 7:30 pm

Location: OMSI Planetarium

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Trout Lake Star Party photo above courtesy Michael Minnhaar
Moon photos below courtesy David Haworth



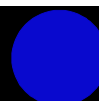
RCA is a member of the
Astronomical League.
<http://www.astroleague.org>

Full Moon
Jul 14

Last Quarter Moon
Jul 22

New Moon
Jul 30

First Quarter Moon
Aug 06



CLUB OFFICERS

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SIG Director	Scott Kindt	sigs@rosecityastronomers.org
Youth Programs Director	Jeannie London	youth@rosecityastronomers.org
Sister Club Liaison	Jan Keiski	sisterclubs@rosecityastronomers.org

RCA MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is a reduced rate subscription to Sky & Telescope and Astronomy magazines. The RCA member rate for Sky & Telescope Magazine is \$32.95 for one year or \$65.90 for two years. The RCA member rate for Astronomy magazine is \$34 for one year or \$60 for two years. For more information go to the RCA web site index and click on the link for magazines. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

<http://www.rosecityastronomers.org/magazines/>
 Larry Godsey <magazines@rosecityastronomers.org>



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CDs and videos. These items can be borrowed by members through checkout at the general meetings for a period of one month with renewals available by phone or e-mail to the club library director. The RCA library is constantly growing through many donations and the purchase of new materials. A listing of library materials (PDF format) can be found at the library web page.

<http://www.rosecityastronomers.org/library.htm>
 Jan Keiski <library@rosecityastronomers.org>



MEMBERSHIP RENEWAL

It's that time of year again, astronomy friends, to renew your membership with the Rose City Astronomers. Our membership year runs from July 1 to June 30th. If you've joined the club this year, your membership is good until June 30, 2012 as you've paid a pro-rated fee when you joined.

Dues will remain the same at \$24.00. This is a bargain for all the benefits available to you, as we are sure you are well aware. Membership is not just about personal benefits.

Your membership dues support the work that RCA does in the community to promote the enjoyment and science of astronomy. Speakers, public star parties, classes and support for astronomy in schoolrooms, and outreach programs just to name a few of the programs that your membership dues support.

How to renew? You may print the renewal form from the RCA website <http://www.rosecityastronomers.org/renew.htm> and mail it with your check (no cash in the mail, please). Checks or cash are accepted at the general meeting. Renewal forms will be available also. You can also pay online, via PayPal, with debit or credit card at <http://www.rosecityastronomers.org/pp/renew.htm> (note that there is a 1 dollar handling fee for this option, total online renewal cost is \$25.00).

At the general meetings you'll find the friendly VP of Membership, Ken Hose, at a table just inside the entrance of the OMSI auditorium or just outside the entrance to the planetarium. We're ready to receive your prompt renewal and answer any questions, too!

Membership status can be checked on the website at: www.rosecityastronomers.org/renew.htm



Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, August 8th, 7pm
Location: Beaverton Public Library
Conference Room
12375 SW 5th St
Beaverton
SIG Leader: Greg Marshall
Email: ai-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/astroimage.htm>

Science Special Interest Group

When: On Hold
Location: Technical Marine Service, Inc
6040 N. Cutter Circle on Swan Island
Portland
SIG Leader: Dan Gray
Email: sci-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/science.htm>

Downtowners Luncheon

When: Friday, August 5th, Noon
Location: Kell's
112 SW Second Ave. Portland
SIG Leader: Margaret Campbell-McCrea
Email: downtown-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/downtowners.htm>

New Members Special Interest Group

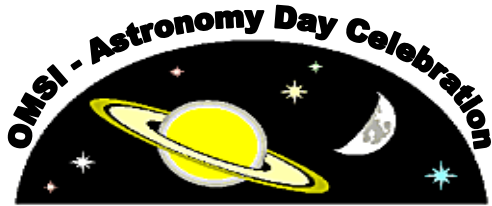
When: Monday, July 18th, 6:30pm
Location: OMSI Planetarium
Topic: Summer Observing Highlights
SIG Leader: Howard Knytych
Email: newmembers@rosecityastronomers.org
http://www.rosecityastronomers.org/sigs/new_members.htm

Telescope Workshop

When: Saturday, July 23rd, 10:00am - 3:00pm
Location: Technical Marine Service, Inc.
6040 N. Cutter Circle on Swan Island
Portland
SIG Leader: John DeLacy
Assistant: Don Peckham
Email: tw-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/tmw.htm>

Astrophysics / Cosmology SIG

When: Wednesday, July 20th, 7pm
Topic: Potluck and Roundtable Discussion
Presented by: "TBA"
Location: Linus Pauling House
SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm



July 23rd, 2011

I would like to invite you and Rose City Astronomers Club to join the Astronomy Day Celebration, a one-day special event for educators and the general public at OMSI on July 23, 2011. This celebration is part of a museum event designed to promote public awareness and interest in astronomy and space science. Past community events at OMSI have involved nearly 2,000 to 3,000 visitors. This, combined with astronaut appearance by Mike Barratt, evening Star Party, and community activities should provide for large attendance and exposure for the RCA club. Everyone involved Astronomy Day Celebration will have free admission to the museum and will be locally advertised along with a web page featuring participating organizations.

Astronomy Day Celebration wouldn't be complete without a free public Star Party! This year's viewing will begin at 8:30 pm, Saturday, at OMSI east parking lot. From beginners to experts, here's the opportunity to help the public view planets, stars and Moon up close through telescopes of all types.



We could use some RCA volunteers to man tables, for solar telescope viewing and for the evening star party. Volunteers wanting to help out are asked to email Dawn at outreach@rosecityastronomers.org.

Trout Lake Star Party July 29-31, 2011

Trout Lake star party is an annual sponsored event put on by the Rose City Astronomers for members and guests, with members of the public sometimes joining us. It is usually held during the weekend closest to new moon in the month of July. The location is at Flattop Sno-Park in the Gifford Pinchot National Forest just a few miles from Trout Lake, WA. There is no registration or fees for the site. Site is a paved parking lot with adjacent "deluxe" outhouse. There are several local attractions to enjoy during the day. The Guler Ice Cave is just a few miles away, several folks go on a tour of some spectacular



local waterfalls, the town of Trout Lake is just down the road with a diner, general store and gas station. A forest service pass is required if

you travel to the caves or elsewhere on Forest Service land and is available at the Ranger Station in Trout Lake.



Star Parties Coming Soon!

[Table Mountain Star Party](#) Jul 28 - 31

[Trout Lake Star Party Weekend](#) Jul 29-31

[OMSI-Perseid Meteor Shower Watch](#) Aug 12

[Mt. Bachelor Star Party at Sunriver](#) Aug 24-28

[White River Star Party](#) Aug 27

[Oregon Star Party](#) Aug 31-Sep 4

[OMSI - Autumnal Equinox](#) Sep 17

[Camp Hancock](#) Sep 23-25

[Maupin Dark Sky Star Party Weekend](#) Sep 30-Oct 02

[Stub Stewart Dark Sky Star Party](#) Oct 01



Oregon Star Party 2011

Come join us August 31st through September 4th for the OREGON STAR PARTY which is held in the isolation and darkest skies in the Northwest 50 miles east of Prineville, Oregon at 5000 feet above sea level. The Oregon Star Party party takes place in a 40 acre clearing in the Ochoco Mountains and is accessible most of the way from Prineville via a paved road, with only the last 4 miles on a graveled road. From Portland, it is about a 4.5 hour drive.

REGISTRATION - Pre-Registration is now open until August 5th, 2011. OSP T-shirts, Long Sleeve T-shirts, zippered Hoodies and Dinners are only available to those that Pre-Register for OSP before the Aug. 5th cutoff. If you don't pre-register before Aug. 5th, you'll still be able to register for a higher fee onsite at the star party in the Registration Tent.

SPEAKERS - We've working on a great list of speakers again this year. Howard Banich, Steve Coe, Jessica Vinyard, Neal Heacock, Peter Abrahams, Chris Ford, and Alvin Huey will be talking on various subjects of interest to all.

ACTIVITIES - Don't forget the Telescope Walk-about, the Mars Rover Races, the Solar System Walk, the Kids vs. Adult quiz, the Swap Meet, the Limiting Magnitude and Sky Identification programs. There are a lot of things to do during the day at OSP in addition to the very dark night skies. Again this year Andy has another exciting schedule of activities for the kids from 10am until 4pm every day.

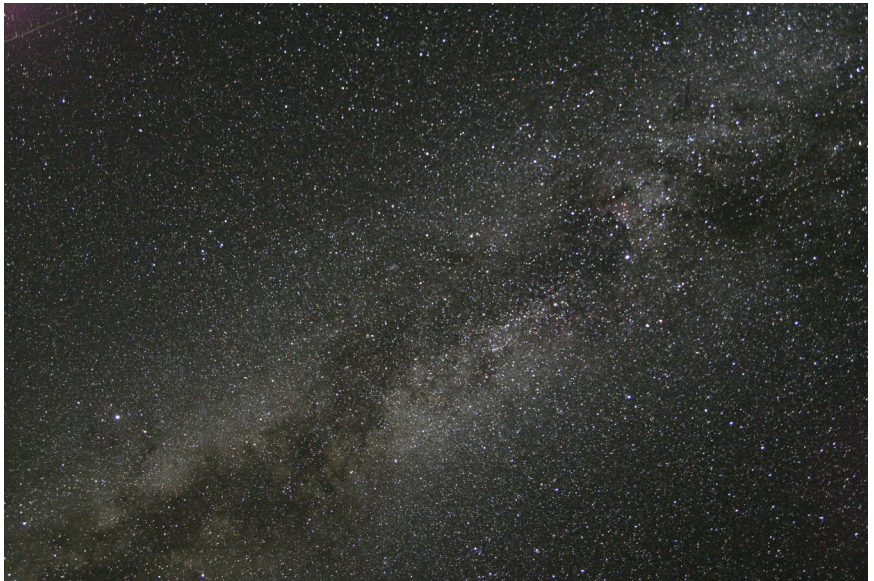
VOLUNTEERS - The Oregon Star Party has a dedicated committee of people who work year around planning for the outing. But it still takes a lot of volunteers on site to make it actually happen. We need people to volunteer for a 2 hour shift to help with registration, parking, shower ticket taking, setup and cleanup. Contact Lisa, our Volunteer Coordinator through the link <http://www.oregonstarparty.org/Volunteers.cfm> to see what each job entails, then follow the [Contact Us](#) link on that page. Provide



Lisa with your name, email address or phone number, and if you have any job and/or time you would particularly like to volunteer for and she'll get back to you. For youth activities contact Andy Phelps, for adult mentoring contact Mark Dakins; and for youth telescope mentoring contact Bernie Kuehn. Messages can be sent to each of these coordinators at the Contact Us page found at <http://www.oregonstarparty.org/contactUs.cfm>. There will be door prizes just for volunteers again this year.

BURGERS & LATTES - Mary will be back with the Chuck Wagon serving up breakfast, lunch, dinner and late night snacks as in the past and Shawna will be back with the Espresso Blast for cold drinks during the day and caffeine at night. This year both the Chuck Wagon and Espresso Blast are again planning on being open for business Wednesday afternoon through Sunday Noon.

MORE INFORMATION - More information, directions, registration, activities, maps and other stuff is listed on the website at <http://www.oregonstarparty.org>. For those who have yet to experience OSP, you can review stories from the prior years, and do some planning for this year right there on the web site. So mark your calendars, bookmark your browsers, and get ahead of the crowd by signing up for the 2011 OSP. Consider joining us for both excellent planetary and deep sky observing with about 600 of your soon-to-be closest friends. We are able to partake of good food, espressos, showers, vendors with tons of astro gear, and a great array of speakers. And while you visit our web site, please consider joining the volunteer group. It is a great way to contribute to the fun, and to meet a number of new friends.



What you can expect at the Oregon Star Party...
So many stars it's hard to find the constellations.



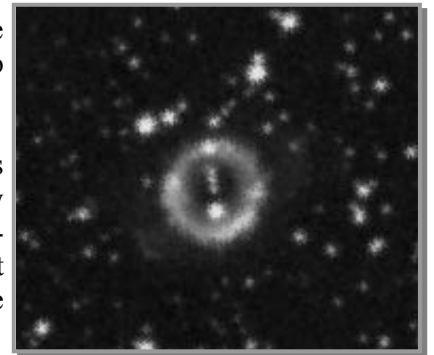
The Scorpius Ring Nebula – NGC 6337

M57, the Ring Nebula in Lyra is an iconic deep sky object and is the brightest and easiest to see member of its class. An ethereal ring of gas and dust fluorescing from the intense UV light of its famously difficult to see central star makes it a fascinating object, and being so easy to find almost exactly halfway between Beta and Gamma Lyrae makes it irresistible to observe in any size scope. But this article isn't about M57, so it will have to wait for another time.

Instead, NGC 6337, the Cheerio Nebula is our focus. A ring type planetary nebula very much like M57, it's located in southern Scorpius a few degrees west and south of the Stinger stars. At magnitude 11.9 and 51 arc seconds in diameter it's reasonably bright and large and will take magnification well. Its central star's magnitude is 14.9.

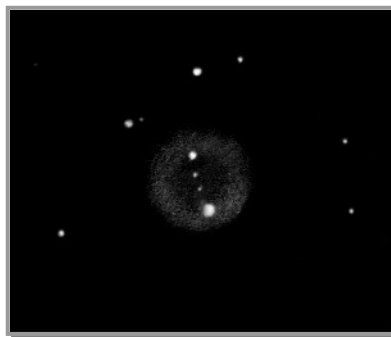
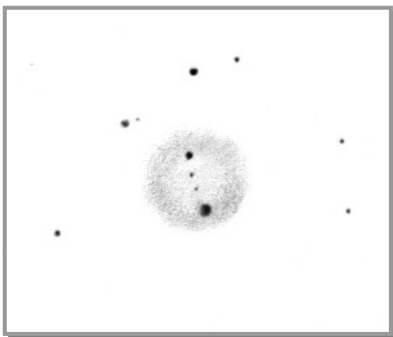
It's also nearly perfectly round in contrast to M57's noticeably oval shape, hence it's nickname. Although I should note that I've had more than one little kid dub M57 as the "Grey Cheerio" so the name really fits any ring-like planetary nebula.

M57's magnitude is 9.7, it's oval shape is 1.8 x 1.4 arc minutes in size and it's central star is magnitude 15.2. So 6337 is smaller, fainter but with a slightly brighter central star. A more stark comparison is the locations of both these planetaries - M57 is nearly as far north of the celestial equator as 6337 is south of it. At minus 38 degrees declination, 6337 is at best only about seven degrees above the horizon for us Oregonians. Yikes!



So why look so far south when you can get a better look at M57 that can be as much as 71 degrees higher in our sky? For the fun of it of course, but 6337 can be extra enjoyable because of all its central stars – check out the DSS image and you'll see a straight line of five stars bisecting the very round ring of NGC 6337. Now that's worth pointing your scope nearly horizontal!

Finding 6337 is pretty easy as it's cradled in the curving tail of Scorpius, but since it's relatively faint and low to the horizon it may take using a UHC or OIII filter to sweep up at low power. You might try using at least 100x to find it. This is a star-rich area and it's fun just to keep sweeping, especially if you don't find 6337 right away.



I've found the non-filtered view to be the most satisfying mostly because it's the only way to see the faint central stars. The two brighter stars on the end of the five star line are seen fairly easily, but the three in the middle are about as difficult to see as the single central star in M57 during poor seeing. The nebula does stand out with higher contrast using either the UHC (good) or OIII (better) filters but they do dim the stars and erase any hope of

seeing the faint triple. My sketch is a composite – the nebula was drawn using an OIII filter and the stars added without a filter, all using 408x. You'll note that I've seen only two of the three faint central stars so far.

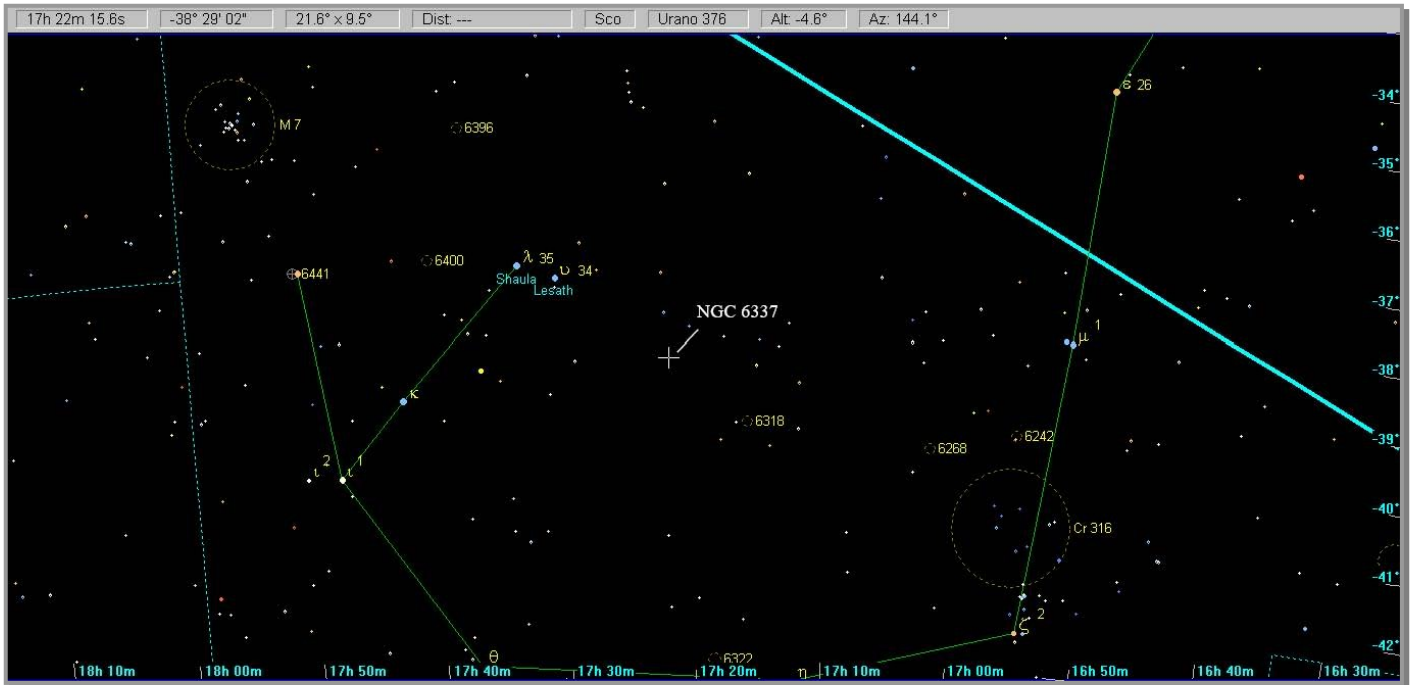
Averted vision and patience will be your friends when observing 6337. The nebula is on the faint side but you should have no trouble seeing it with an 8 inch scope, so the three faint central stars are the real challenge. Being as dark

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adapted as possible is as important as using averted vision, and given that the seeing will be poor-to-awful this low in the sky you'll need a good dollop of patience to wait for the steadiest moments.

The seeing is poor this low in the sky because we're looking through a great deal more of our atmosphere than is overhead, so we're also looking through much more turbulence than normal. This not only affects the seeing but also how faint you can see because the atmosphere is also blocking some light from making it to your scope.

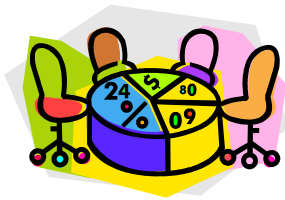


6337 is on the meridian around midnight early July, and the further south you are the higher in the sky it will be. I've observed it twice from the Golden State Star Party site at about +40 degrees latitude with my 28 inch scope, and had similar views through my 13 inch from the Big Island of Hawaii at around +20 degrees latitude, so elevation above the horizon really matters. My best view was with the 28 inch – see the sketches above - but it was only slightly better than with the 13 inch in that I could see a few more of the fainter stars.

A fun thing to do after exploring the Cheerio Nebula is to head straight for M57 to compare the two. At the very least you'll come away with a greater appreciation for the size and brightness of M57 and you may find that it easier to detect subtle variations through the Ring because of warming up your eye on 6337. Even if that comparison doesn't appeal to you, if you're a fan of planetary nebulae or you just like to see unusual, out of the way sights, NGC 6337, the Cheerio Nebula should be on your July observing list.

In the paper “The Outflows and Three-Dimensional Structure of NGC 6337: A Planetary Nebula with a Close Binary Nucleus”, Ma. T. García-Díaz, D. M. Clark, J. A. López, W. Steffen and M. G. Richer (http://iopscience.iop.org/0004-637X/699/2/1633/apj_699_2_1633.text.html) discuss the three dimensional structure of 6337 as being greatly influenced by the true central star being a tight double star. The true central star is the faint one that's closest to the brightest star just inside the ring – in other words, the star that looks like it's right in the center of the nebula. The other four stars just happen to lay in our line of sight and none are the secondary of the central star.

This is an interesting read - if you don't mind the style of a research paper - and the discussion of how the authors constructed a 3D map of 6337 is worth the effort to slog your way through it. Having some idea of 6337's internal dynamics brings it to life and makes it that much more compelling through the eyepiece, so in that sense knowledge of its physical nature is as powerful an observing tool as a nebula filter or averted vision.



Minutes of the Rose City Astronomers Board

May 2nd 2011

Held at OMSI Classroom 1

Board Members Present

Sameer Ruiwale (President)
Ken Hose (VP Membership)
Dawn Willard (VP Community Affairs)
Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Duncan Kitchin (Secretary)
Larry Froberg (Sales Director)
Howard Knytych (New Member Advisor)
Greg Rohde (Telescope Library)
David Nemo (Observing Site Director)
Scott Kindt (Newsletter Editor, SIG Director)
Diana Fredlund (Media Adviser)

Mark Martin (guest)

Call to Order

The meeting was called to order at 7:05pm by Sameer Ruiwale and, there being 11 board members present, the quorum requirement of 9 was declared to be met.

Approval of Agenda

The agenda was approved by unanimous consent.

Approval of Minutes

Moved: Approve minutes from the March 2011 board meeting.
Moved: Duncan Kitchin. Second: Larry Froberg. Motion passes 10-1-0.
Moved: Approve minutes from the April 2011 board meeting.
Larry Froberg – the sales figure for Skytools is incorrect. Larry will send correct number. Ken: membership number is incorrect. Should be 334, not 324. Edits from Jan will be incorporated.
Moved: Duncan. Second: Sameer. Motion passes 10-1-0.

Directors' Reports

Treasurer's Report – Larry Godsey: Monthly Balance sheet, Itemized list, and Profit and Loss reports provided by Larry. Has not broken apart the Operations bank account into CD and checking yet, but will do that shortly. About \$4000 of bills are due to be paid this month. All of the financial reports are available to board members on the board website.

VP Programming – Mark Martin: Info fair this month. Will be sending out a message later this week reminding them and asking for a report to Scott by Friday evening this week if they want additional information in the newsletter. Telescope workshop will have information on cleaning optics. Astro Imaging SIG will also be putting together a display and may have demonstration equipment. Will also be doing a swap meet at the same time. Sunriver observatory

will also be here. June we have Chris Churchill from New Mexico State coming to talk about quasar measurements. July and August are not yet fixed. Rod Molise may come one of the two months, but awaiting confirmation. Ken Hose will be presenting the other month. Also have Jeff Barnes from Oregon State potentially available, to talk about Mars science laboratory which is designed to search for life on Mars. September speaker is Dirk Schulze-Makuch talking about life in the solar system. Dirk's new book will be available for sale at the meeting. October – Richard Berry talking about "The Original Big, Big, Big Telescopes", referring The Herschel telescopes. Richard's new book may be coming out just before the meeting. November is still open – may be possible for Jeff Barnes. Has not yet heard anything back from New Horizons. Will be asking some of the speakers from the OMSI astro-imaging conference to speak. Also trying to work out details of IDA symposium. Mark has been in contact with Dawn Nilson to arrange details.

VP Observing – Matt Vartanian: Not present.

VP Community Affairs – Dawn Willard: 3 star parties scheduled this month. Dawn will be sending out a message for all three shortly. Next one is a Girl Scout camp in Corbett on Larch mountain – will be large about 242. Dawn will need as many volunteer as available. Saturday May 14th – full moon. May 18th McLaughlin middle school in Vancouver. OMSI science night that day also, star party to follow. May 26th at a school near Scappoose, will have about 30 present. Everything else currently on the list is not until August.

VP Membership – Ken Hose: This month 7 new members joined, plus 6 renewals. There are now 346 total member families, compared to 344 this time last year, and 328 the year before. Half the transactions through PayPal; this is becoming more and more popular. Brought in \$361 in dues total in the last month. Email arrived from ALCOR saying that there will be another email about dues soon. Larry Godsey: Dues are typically paid in June, due July 1st. Based on December membership, which is a good average for the year.

Alcor – Ken Hose: See above. Ken has also been trying to sync with Dale to complete handover.

New Member Advisor – Howard Knytych: Meeting this month. Topic will be "Summer Observing", unless there are other ideas. Larry Froberg: could we do a new member meeting explaining different types of optics? Can set something up using what is available in the telescope library. Revised title for new member meeting "Choosing the Observing Equipment".

Media Director – Diana Fredlund: News release ready to go – will add in details of new member meeting as just discussed. Talking with reporter from KATU about article being

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(Continued from page 8)

written about green laser incidents at PDX. Sameer has already responded with information. Diana will be in contact with the reporter, who will be putting the story together in the next few days.

Sales – Larry Froberg: last month were comparatively weak, brought in total of \$227 for the month, but that included \$20 for 2 t-shirts for Craig Crinklaw and \$98 for Skytools 3 sales. All the Skytools copies are now sold. Hopefully now that the weather is better, we will see sales pick up. The “We Are Not Alone” books have seen only 3 pre-orders, but given that the meeting is in September there is still plenty of time. Larry Froberg will call the publishers to see what kind of volume discount we could be able to get. Suggestion from Margaret McCrea – “Illustrated Guide to Astronomical Wonders”. Mark Martin also finds this book useful. Larry Froberg will look into whether we should carry it. Sameer: need to start working on calendars for 2012. There has been some suggestion that we could consider a larger size. Larry Froberg will look into pricing, and will also look at possible alternate printers to compare pricing. If anybody has any printers that they have dealt with, please send to Larry Froberg. Mark Martin: there were some people at Camp Hancock expressing interest in SkyTools. We need 5 copies to get a quantity discount. Will put message on forum and see what the interest level is.

Book Library – Jan Keiski: Nominal.

Telescope Library – Greg Rohde: Picked up a donation at the telescope workshop. 6” Newtonian tube, no mount, and an 8” Newtonian tube on a German equatorial mount. Also picked up a donation from Greg Jones including a projector lens and a number of mirrors.

IDA – Dawn Nilson: No report.

Magazine Subscriptions – Larry Godsey: Nominal.

Webmaster – Larry Godsey: We are now up and running on Facebook and Twitter. Also has phone line set up. Have 17 “likes” on Facebook, including 9 non-members.

Site Committee – David Nemo: Had 3 people come forward to volunteer to help at the Haggart observatory. Will also be sending out broadcast message, and will then schedule a meeting to see what we can do. Greg: how many do we need? David: there is no hard limit. Depending on how many people we have, the amount we can do will vary. There were about 5 or 6 volunteers at the college beforehand. Some of them may continue. Had follow up request to BSA about possible dates to check out Camp Baldwin, but awaiting reply.

Youth Director - Jean London: Not present.

Newsletter Editor – Scott Kindt: Have newsletter for this month. Has a submission from Howard Banich. Announcements about public outreach star parties? Will keep the details off the newsletter, but instead will stick to broadcast email and forum messages to request volunteers. Will submit reports of past star party events to the newsletter, however. Also looking for reports from Camp Hancock or other RCA star parties.

SIGs – Scott Kindt: Nominal.

OMSI –Jan Keiski: June, July and August general meetings will be in the planetarium. July 23rd is astronomy day at OMSI.

No changes to July 9th OMSI star parties. Next month’s board meeting will be in the Parker room. July and August board meetings will also be in other rooms.

Sister Club update – Jan Keiski: Nominal.

Old Business

Update on Skamania Lodge request for telescopes / volunteers - Dawn Willard. Have not heard from them recently. Dawn will contact to see if they are still interested.

Update on proposal for “Think out loud” radio show – Diana Fredlund. Diana has not heard back from them. Will drop this item for now, Diana will bring up again if there is a response.

Proposal for RCA / Clackamas Community College Haggart Observatory use – David Nemo / Sameer Ruiwale. Already covered in observing site report.

Vote on RCA joining “Astronomers without Borders” as affiliate - All. Larry Godsey: since not everybody on the board has gone through the website, suggests that we postpone voting on this item until everybody has had a chance to do so. Shipping of scopes: will ship smaller scopes overseas, but larger scopes only sold here. Mission statement is on their website. Sameer: we will vote on this item next month.

Tabled

Create Mirror Making Machine usage instructions – David Nemo / Greg Rohde. Peter Abrahams has a 12½” blank that he is going to start on soon.

Update on costs / procedures for shipping a telescope to GAMA in Argentina - Margaret Campbell-McCrea / Larry Godsey. Leo Cavagnaro has been in contact – he is still interested and will be researching shipping options from his end.

New Business

Approve & Sign OMSI – RCA Agreement for year 2011-12 - All. Agreement is the same as last year. Text will be posted on the board website. Moved: Sameer. Second: Howard Knytych. Passes 12-0-0.

Vote Mark Martin to replace Matt Brewster as VP Communications – All. Moved: Sameer. Second: Larry Godsey. Motion passes 11-0-0.

May ’11 Information Fair Logistics and Format. Already discussed.


Discussion on whether to continue having Info Fair in the future. Will discuss this after the event. Greg Rohde: would it help attendance if we stress the swap meet aspect of the meeting?

2011-12 Budget Discussion. Last pages of Larry Godsey’s handout contains all of the supplied budget numbers rolled up into a proposed budget for next year for discussion. Shows current for this year including all of the expenses that are already known.

Adjournment

There being no further business, the meeting was adjourned at 9:03pm

JULY 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Maupin Star Party 	2 Maupin Star Party Stub Stewart Star Party
3 Maupin Star Party	4 	5	6	7 	8 Noon Downtowners Luncheon Kell's	9 OMSI Starparty Rooster Rock and Stub Stewart
10	11 7pm Board Meeting OMSI Classroom 2 7pm Astro Imaging SIG Beaverton Library	12	13	14 	15	16
17	18 6:30 New Members SIG 7:30pm General Meeting OMSI Planetarium	19	20 7pm Cosmology SIG	21	22 	23 10am - 3pm Telescope Workshop
24	25	26	27	28	29 Trout Lake Star Party	30  Trout Lake Star Party
31 Trout Lake Star Party						

August 2011

Aug 01	Monday	Board Meeting	OMSI Classroom 2	7pm
Aug 05	Friday	Downtowners Luncheon	Kell's	Noon
Aug 08	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
Aug 12	Saturday	OMSI Star Party	Rooster Rock and Stub Stewart State Parks	7:30pm
Aug 13	Saturday	Telescope Workshop	Swan Island	10am-3pm
Aug 15	Monday	General Meeting	OMSI Auditorium	7:00pm
Aug 17	Wednesday	Cosmology SIG	Linus Pauling House	7pm
Aug 27	Saturday	White River Star Party	White River Parking Area	Evening
Aug 31-Sep 04	Friday	Oregon Star Party	Ochoco National Forest	

<http://www.rosecityastronomers.org>

Rose City Astronomers
Oregon Museum of Science and Industry
1945 SE Water Ave
Portland, OR 97214-3356

The Rosette Gazette

Volume 23, Issue 08

Newsletter of the Rose City Astronomers

August, 2011



Pushing the limits of your observing ability

A quantitative survey of factors contributing to your observing success

By Matt Vartanian

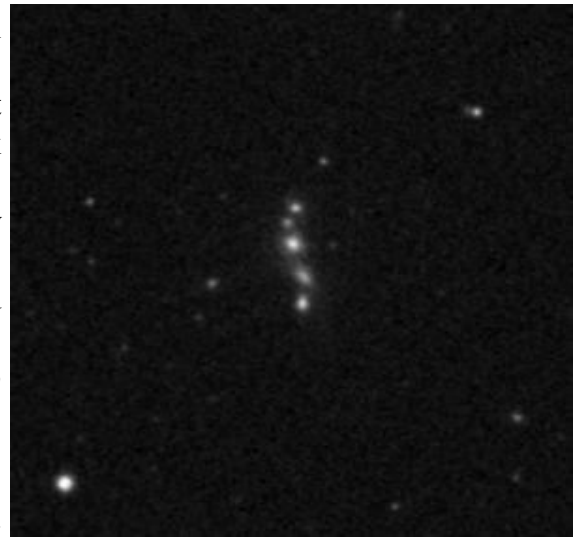
Matt Vartanian, RCA member and author of the Oregon Star Party's most challenging observing list will present a look at the factors that contribute to your ability to observe difficult objects.

In This Issue:

- 1....General Meeting
- 2....Club Officers
-Magazines
-RCA Library
- 3....Local Happenings
-Special Interest Groups
- 4Star Parties
- 6....The Observers Corner
- 9....RCA Board Minutes
- 11...Calendars

Unique among presentations of this type, Matt has quantified in magnitudes how much each factor affects your ability to observe faint objects. He will address such topics as:

- The solar cycle and its effect on observing.
- How long to dark adapt and what indirect factors contribute to dark adaptation.
- How age affects observing and why it's not as bad as you think.
- What optimal magnification you should use on any given object .
- What is the optimal altitude to observe from.
- The truth about carrots.



This should be an eye opening presentation for all observers from novice to seasoned veteran!

Galaxy group Hickson 55, a difficult visual object with some interesting structure.



RCA is a member of the
Astronomical League.
<http://www.astroleague.org>

All are Welcome! Monday August 15th
General Meeting Begins: 7:30 pm Location: OMSI Planetarium

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Trout Lake Star Party photo above courtesy Michael Minnhaar
Moon photos below courtesy David Haworth

First Quarter Moon
Aug 06

Full Moon
Aug 13

Last Quarter Moon
Aug 21

New Moon
Aug 28



CLUB OFFICERS

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Past President	Carol Huston	pastprez@rosecityastronomers.org
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Youth Programs Director	Jeannie London	youth@rosecityastronomers.org
Sister Club Liaison	Jan Keiski	sisterclubs@rosecityastronomers.org

RCA MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is a reduced rate subscription to Sky & Telescope and Astronomy magazines. The RCA member rate for Sky & Telescope Magazine is \$32.95 for one year or \$65.90 for two years. The RCA member rate for Astronomy magazine is \$34 for one year or \$60 for two years. For more information go to the RCA web site index and click on the link for magazines. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

<http://www.rosecityastronomers.org/magazines/>
 Larry Godsey <magazines@rosecityastronomers.org>



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CDs and videos. These items can be borrowed by members through checkout at the general meetings for a period of one month with renewals available by phone or e-mail to the club library director. The RCA library is constantly growing through many donations and the purchase of new materials. A listing of library materials (PDF format) can be found at the library web page.

<http://www.rosecityastronomers.org/library.htm>
 Jan Keiski <library@rosecityastronomers.org>



MEMBERSHIP RENEWAL

It's that time of year again, astronomy friends, to renew your membership with the Rose City Astronomers. Our membership year runs from July 1 to June 30th. If you've joined the club this year, your membership is good until June 30, 2012 as you've paid a pro-rated fee when you joined.

Dues will remain the same at \$24.00. This is a bargain for all the benefits available to you, as we are sure you are well aware. Membership is not just about personal benefits.

Your membership dues support the work that RCA does in the community to promote the enjoyment and science of astronomy. Speakers, public star parties, classes and support for astronomy in schoolrooms, and outreach programs just to name a few of the programs that your membership dues support.

How to renew? You may print the renewal form from the RCA website <http://www.rosecityastronomers.org/renew.htm> and mail it with your check (no cash in the mail, please). Checks or cash are accepted at the general meeting. Renewal forms will be available also. You can also pay online, via PayPal, with debit or credit card at <http://www.rosecityastronomers.org/pp/renew.htm> (note that there is a 1 dollar handling fee for this option, total online renewal cost is \$25.00).

At the general meetings you'll find the friendly VP of Membership, Ken Hose, at a table just inside the entrance of the OMSI auditorium or just outside the entrance to the planetarium. We're ready to receive your prompt renewal and answer any questions, too!

Membership status can be checked on the website at:
www.rosecityastronomers.org/renew.htm



Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, August 8th, 7pm
Location: Beaverton Public Library
Conference Room
12375 SW 5th St
Beaverton
SIG Leader: Greg Marshall
Email: ai-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/astroimage.htm>

Science Special Interest Group

When: On Hold
Location: Technical Marine Service, Inc
6040 N. Cutter Circle on Swan Island
Portland
SIG Leader: Dan Gray
Email: sci-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/science.htm>

Downtowners Luncheon

When: Friday, August 5th, Noon
Location: Kell's
112 SW Second Ave. Portland
SIG Leader: Margaret Campbell-McCrea
Email: downtown-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/downtowners.htm>

New Members Special Interest Group

When: Monday, September 19th, 6:30pm
Location: OMSI Planetarium
Topic: TBD
SIG Leader: Howard Knytych
Email: newmembers@rosecityastronomers.org
http://www.rosecityastronomers.org/sigs/new_members.htm

Telescope Workshop

When: Saturday, August 13th, 10:00am - 3:00pm
Location: Technical Marine Service, Inc.
6040 N. Cutter Circle on Swan Island
Portland
SIG Leader: John DeLacy
Assistant: Don Peckham
Email: tw-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/tmw.htm>

Astrophysics / Cosmology SIG

When: Wednesday, August 17th, 7pm
Topic: TBD
Presented by: "TBA"
Location: Linus Pauling House
SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm



**OMSI Star Party
Perseid Meteor Shower Watch
August 12, 2011 starting at 9:00 pm**

The Oregon Museum of Science and Industry ([OMSI](#)) is getting ready for its largest star party of the year on August 12, the Perseid Meteor Shower Watch! Stargazers will be meeting at both Rooster Rock State Park and Stub Stewart State Park at 9 p.m. to watch and enjoy the wonder of the Perseid Meteor Shower. The event is sponsored by OMSI, the Rose City Astronomers, the Vancouver Sidewalk Astronomers and Oregon Parks and Recreations.

Timing is not precise, but according to the American Meteor Society, the 2011 peak is expected on August 12th at around 9:00 p.m. PDT (0400 hours UT on August 13). There is some uncertainty, so it's very worthwhile to observe on either side of this time. The OMSI Star Parties will be held on the night of August 12 and into the early morning of August 13. Estimate peak rates for this year's Perseid is near 60 for those under transparent rural skies. Those under dark but hazy skies should still be able to see 30-40 Perseids per hour. Those under urban skies will be lucky to exceed 20 per hour. Unfortunately, this year will have the full moon on August 12 and will be a factor for viewing the fainter meteors of the Perseids. While viewing the Perseids, we will look at the Moon, Saturn and later Jupiter. As a bonus, the International Space Station will be visible on the same night.

To reach [Rooster Rock State Park](#), take I-84 east of the Sandy River at exit 25. The park is located 22 miles east of Portland. To reach [L.L. "Stub" Stewart State Park](#), take US-26 west of Portland and turn right on OR-47. The park is located 23 miles west of Portland. The event is free, and there is a \$5 per vehicle parking fee for public. For possible weather cancellation, call (503) 797-4610 on August 12 after 4:00 PM to get the latest information.



Photo of 2009/P1 Garradd taken by Steven Jacobs at the Trout Lake Star Party. 80mm Orion EON telescope on a Sirius mount with Starlight Xpress M25C camera. Single 3min exposure. De-bayering with Maxim DL, levels, curves and cropping with PS CS4.

Thursday and Friday nights were great! Saturday night was a bit breezy. Comet Garradd was definitely one of the highlights of the weekend. Movement could be seen in just an hours time. Just a hint of a tail in a 12 inch or larger scope. If you weren't there, you should have been! - Scott Kindt

[Star Parties Coming Soon!](#)

- [OMSI-Perseid Meteor Shower Watch](#) Aug 12
- [Mt. Bachelor Star Party at Sunriver](#) Aug 24-28
- [White River Star Party](#) Aug 27
- [Oregon Star Party](#) Aug 31-Sep 4
- [OMSI - Autumnal Equinox](#) Sep 17
- [Camp Hancock](#) Sep 23-25
- [Maupin Dark Sky Star Party Weekend](#) Sep 30-Oct 02
- [Stub Stewart Dark Sky Star Party](#) Oct 01



Oregon Star Party 2011

Come join us August 31st through September 4th for the OREGON STAR PARTY which is held in the isolation and darkest skies in the Northwest 50 miles east of Prineville, Oregon at 5000 feet above sea level. The Oregon Star Party takes place in a 40 acre clearing in the Ochoco Mountains and is accessible most of the way from Prineville via a paved road, with only the last 4 miles on a graveled road. From Portland, it is about a 4.5 hour drive.

REGISTRATION - Pre-Registration is now open until August 5th, 2011. OSP T-shirts, Long Sleeve T-shirts, zippered Hoodies and Dinners are only available to those that Pre-Register for OSP before the Aug. 5th cutoff. If you don't pre-register before Aug. 5th, you'll still be able to register for a higher fee onsite at the star party in the Registration Tent.

SPEAKERS - We've working on a great list of speakers again this year. Howard Banich, Steve Coe, Jessica Vinyard, Neal Heacock, Peter Abrahams, Chris Ford, and Alvin Huey will be talking on various subjects of interest to all.

ACTIVITIES - Don't forget the Telescope Walk-about, the Mars Rover Races, the Solar System Walk, the Kids vs. Adult quiz, the Swap Meet, the Limiting Magnitude and Sky Identification programs. There are a lot of things to do during the day at OSP in addition to the very dark night skies. Again this year Andy has another exciting schedule of activities for the kids from 10am until 4pm every day.

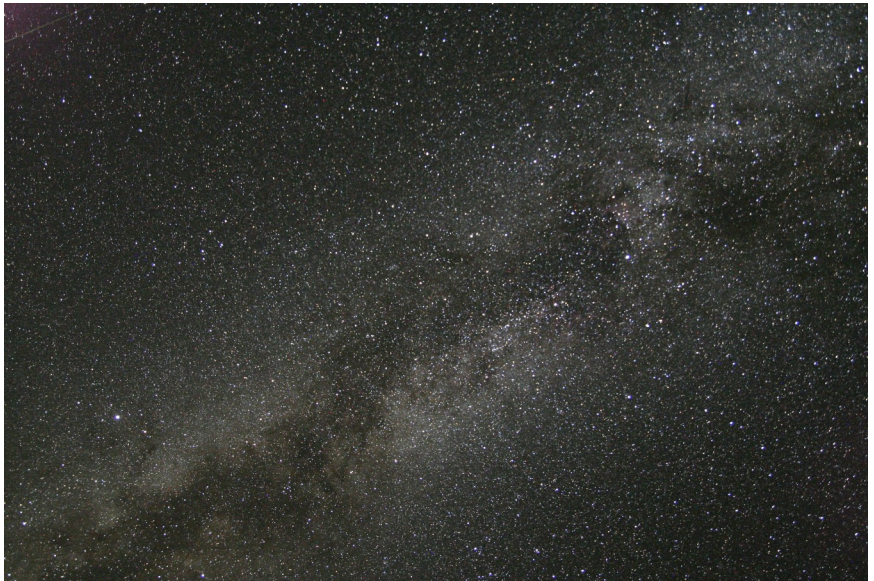
VOLUNTEERS - The Oregon Star Party has a dedicated committee of people who work year around planning for the outing. But it still takes a lot of volunteers on site to make it actually happen. We need people to volunteer for a 2 hour shift to help with registration, parking, shower ticket taking, setup and cleanup. Contact Lisa, our Volunteer Coordinator through the link <http://www.oregonstarparty.org/Volunteers.cfm> to see what each job entails, then follow the [Contact Us](#) link on that page. Provide



Lisa with your name, email address or phone number, and if you have any job and/or time you would particularly like to volunteer for and she'll get back to you. For youth activities contact Andy Phelps, for adult mentoring contact Mark Dakins; and for youth telescope mentoring contact Bernie Kuehn. Messages can be sent to each of these coordinators at the Contact Us page found at <http://www.oregonstarparty.org/contactUs.cfm>. There will be door prizes just for volunteers again this year.

BURGERS & LATTES - Mary will be back with the Chuck Wagon serving up breakfast, lunch, dinner and late night snacks as in the past and Shawna will be back with the Espresso Blast for cold drinks during the day and caffeine at night. This year both the Chuck Wagon and Espresso Blast are again planning on being open for business Wednesday afternoon through Sunday Noon.

MORE INFORMATION - More information, directions, registration, activities, maps and other stuff is listed on the website at <http://www.oregonstarparty.org>. For those who have yet to experience OSP, you can review stories from the prior years, and do some planning for this year right there on the web site. So mark your calendars, bookmark your browsers, and get ahead of the crowd by signing up for the 2011 OSP. Consider joining us for both excellent planetary and deep sky observing with about 600 of your soon-to-be closest friends. We are able to partake of good food, espressos, showers, vendors with tons of astro gear, and a great array of speakers. And while you visit our web site, please consider joining the volunteer group. It is a great way to contribute to the fun, and to meet a number of new friends.



What you can expect at the Oregon Star Party...
So many stars it's hard to find the constellations.



Stephan's Quintet - Hickson Compact Group 92, Arp 319



Many years ago when I first read about Stephan's Quintet I was astonished that amateur observers could see an object this exotic and obscure. Imagine – a group of five faint galaxies so close together that they practically overlap. It seemed this compact galaxy group was reserved for large amateur telescopes because hardly anyone had even tried to see it way back when. As it turns out, it's not nearly as difficult as it may seem.

The photo at left is an NOAO image showing the main group of five galaxies with a sixth one at far left.

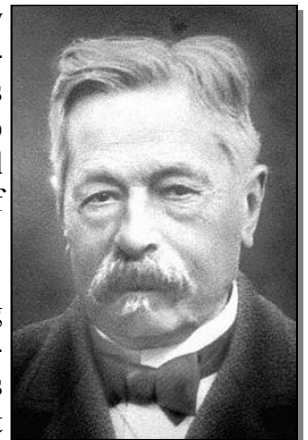
Stephan's Quintet may not seem quite as exotic as it was twenty years ago, but then it isn't visible under heavily light polluted skies with a 4 inch scope either. But it can be seen with a 6 inch or larger scope under relatively dark skies, and as always the darker the

skies the better. A 6 inch scope will be able to show the combined glow of the five galaxies, especially with the use of averted vision. It may not be easy, especially if you're relatively new to visual observing, but it is a fun challenge that has a good chance of paying off, especially if you're a patient observer who's not easily discouraged.



But first, who was Stephan and why is a compact galaxy group named after him? Édouard Jean-Marie Stephan (1837-1923) was the Director of the Marseille Observatory and was working on measuring the exact positions of as many deep sky objects as he could to use them as a fixed background reference system in order to determine the proper motions of stars within our Milky Way galaxy.

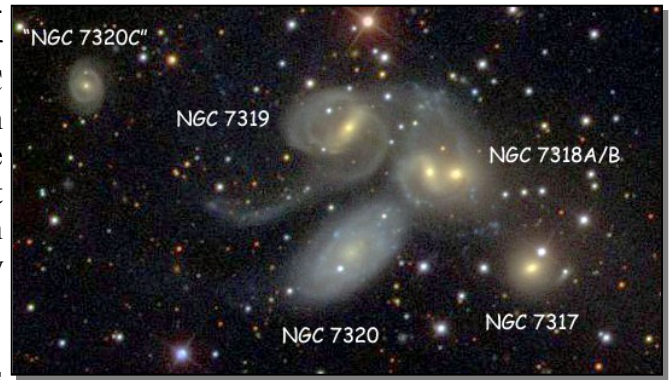
In the process Stephan discovered 139 deep sky objects using the world's first silver-on-glass mirror (made by Leon Foucault) that was the heart of the 78.7cm (31 inch) Marseille telescope shown above. In many respects, this is the first modern reflecting telescope.



(Continued on page 7)

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Stephan came across his quintet of galaxies on September 23, 1876, but at the time he actually saw only four of the five as he didn't resolve the close pair of NGC 7318A and B, perhaps due to the light pollution from nearby Marseilles. Nonetheless, he was the first to see this galaxy group, which was the also the first compact galaxy group ever discovered. Even though he went on to discover several more compact galaxy groups, only this first one is named after him.



Before writing this article I didn't know that Stephan's Quintet was the first compact galaxy group ever found, and that it was discovered with the world's first silver-on-glass reflecting telescope. Finding out stuff like this is one of the main reasons I enjoy writing so much.

We now know that four of the five galaxies are physically interacting with each other, and a quick look at the NOAO photo will show you which one isn't – the light blue galaxy, NGC 7320, is in the foreground and so is a random alignment only 40 million light years away. Redshift isn't merely a concept, you can often tell just by looking at the color of galaxies in compact groups if they're physically associated. The farther away they are, the more yellow and eventually red they'll look. This is the Doppler Effect of our expanding universe in action. The yellowish interacting galaxies of Stephan's Quintet are all around 290 million years away.



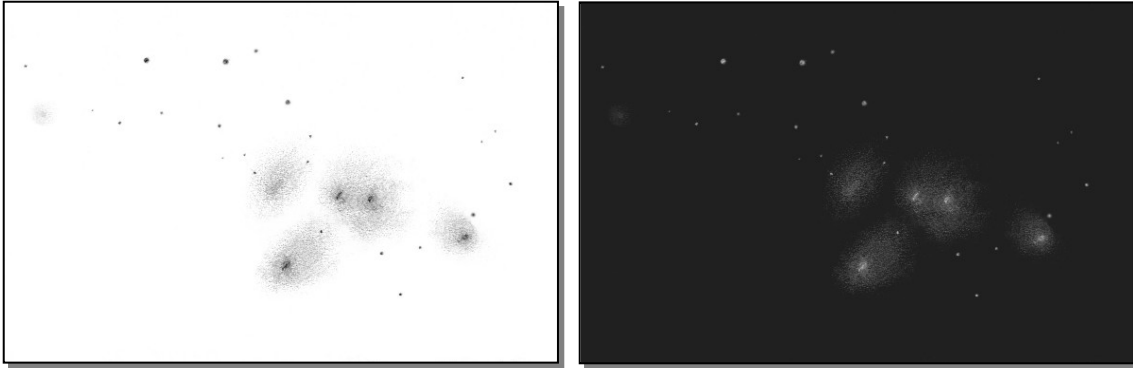
So four of the five galaxies in Stephan's Quintet are physically interacting and after a few billion years will likely merge into one elliptical galaxy. X-rays have been detected that are from a shock front of colliding gas from NGC 7318B as it falls into the group at several million miles per hour. The x-rays are shown as the lumpy blue arc in the composite image made from Chandra X-ray telescope and the Canada-France-Hawaii telescope above. So this is a highly energetic, actively colliding galaxy group. Their distorted shapes and proximity to each other earned them a place in Halton Arp's Atlas of Peculiar Galaxies as Arp 319.

Of course you can't see any of this action unless you have x-ray vision, but what can you expect to see? As noted above, the magnitudes of the galaxies range from 13.1 – not all that faint – to 14.3. NGC 7320C, which is at the far left of this photo is physically associated with the main group, is magnitude 16.7, but it's safe to consider this a bonus challenge object.

The main five galaxies of the quintet all have NGC numbers and each one might be detected in an 8 inch scope under ideally dark and steady skies, and their combined glow would likely be visible with a 6 inch under the same conditions. With a 16 inch or larger scope you can use high powers to separate the individ-

(Continued on page 8)

(Continued from page 7)



ual galaxies for a view much like that shown in my sketch. My sketch was made with my 28 inch scope under dark but not super great skies (21.47 Sky Quality Meter reading) using 408x. It's similar to views I've had with my old 20 inch.

I could see the main five galaxies quite well but it took averted vision to see NGC 7320C at the far left of the sketch. Under truly dark skies it can pop out, but it's quite faint so don't expect to see it in anything smaller than a 16 inch.

Conveniently, the location of Stephan's Quintet is not difficult to find because it's so close to the magnitude 9.4 galaxy NGC 7331 in northern Pegasus. Find 7331, then bump your scope less than a degree to the southwest and you're there.

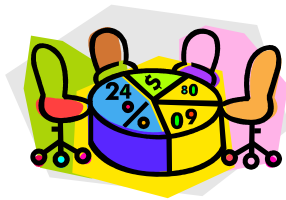
The wide angle photo by Don McCrady (<http://starryvistas.net/Gallery/NGC7331-StephansQuint/NGC7331.aspx>) shows how close they are in the sky, and gives a good idea of what Stephan's Quintet looks like at low power – a lumpy smudge.



NGC 7331, with Stephan's Quintet / Don J. McCrady / 2007-07-27

While you're in the area, have a good look at NGC 7331 and its companion galaxies. Note that you'll probably only see three of 7331's companions – there are ten in all - even if you can see the five individual galaxies in Stephan's Quintet. Regardless, both groups are similar because many of the galaxies of the 7331 group are also gravitationally interacting.

As you probably know, there are many, many galaxy groups scattered about the sky. As Stephan wrote in 1871, before he'd even found his now-famous quintet, he was "impressed by the high frequency of groups of nebulae that populate some regions of the sky." I'll bet you will be too, and what better place to start than with Stephan's Quintet.



Minutes of the Rose City Astronomers Board

June 6th 2011

Held at OMSI Classroom 1

Board Members Present

Sameer Ruiwale (President)
Ken Hose (VP Membership)
Mark Martin (VP Programming)
Duncan Kitchin (Secretary)
Howard Knytych (New Member Advisor)
Jan Keiski (Library Director, OMSI & Sister Club Liaison)
Greg Rohde (Telescope Library)
David Nemo (Observing Site Director)
Scott Kindt (Newsletter Editor)

Call to Order

The meeting was called to order at 7:15pm by Sameer Ruiwale and, there being 9 board members present, the quorum requirement of 9 was declared to be met.

Approval of Agenda

The agenda was approved by unanimous consent

Approval of Minutes

Moved: Approve minutes from the May 2011 board meeting. Moved: Duncan Kitchin second: Sameer Ruiwale. Motion passes 9-0-0.

Directors' Reports

Secretary's Report – Duncan Kitchin: **Quorum (9)** met with 9 voting members present.

Treasurer's Report – Larry Godsey: Not present, nominal report received via

VP Programming – Mark Martin: Rod Molise will not be able to come in July or August due to conflicts, but may be available in January. Ken Hose will be the speaker in July, talking about exoplanets. This month we have Chris Churchill, who will be talking about using measurements of distant quasars to understand intervening galaxies. An abstract of that presentation is available in the website. Trying to get Jeff Barnes from COAS at OSU for a future presentation. Jeff studies atmospheres of other planets, and has been involved with the Mars science laboratory. Speaker for November is David Haworth, who will be speaking about spectroscopy. Next year we will have Matt

Vartanian talking about night vision. Date TBD. Also in discussion with Brian Graham who will shortly be touring the large hadron collider.

VP Observing – Matt Vartanian: Not present.

VP Community Affairs – Dawn Willard: Not present.

VP Membership – Ken Hose: Last month took in about \$544 in dues. There were 8 new member families and 13 renewals. We now have a total of 355 member families, compared to 358 this time last year and 333 this time two years ago. End of June will be the high point before the next renewal cycle.

Alcor – Ken Hose: Ken has gone through the first round of submitting observing lists for awards. Has not yet submitted a new membership list for *Reflector*, so AL is using the old list for now. Ken will send list of awardees to Scott for the newsletter and to Larry Godsey to put on the website.

New Member Advisor – Howard Knytych: New member meeting last month, covering observing equipment and explaining how to choose telescopes and what the different parameters are. No new members meeting this month. Mark: in alternate months when there is not a new members meeting, could we hold hour-long SkyTools classes? This should be possible to set up.

Media Director – Diana Fredlund: Not present.

Sales – Larry Froberg: Not present.

Book Library – Jan Keiski: Nominal.

Telescope Library – Greg Rohde: Have one donation this month of an 8" SCT on single arm mount. Does not currently have tripod, but should have that in the next month. There are 20 telescopes currently available or in use, including 2 solar scopes plus one that needs to be refurbished by Meade.

IDA – Dawn Nilson: Not present. AR – Sameer to contact Dawn to ask about the proposed dark sky conference in conjunction with a speaker for RCA.

Magazine Subscriptions – Larry Godsey: Nominal.

Webmaster – Larry Godsey: Nominal.

Site Committee – David Nemo: Haggart observatory orientation on May 20th, attended by 12 of the volunteers (21 volunteers in total). 3 representatives from Clackamas Community College were present, explained background and history of the observatory, and talked about how they had run the observatory and

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(Continued from page 9)

outreach programs in the past. What they needed previously was 3 people for any public event. Also discussed the current state of the equipment to understand maintenance that may need to be done, such as collimation of the main telescope, fixing of rubber mats, etc. Possible major upgrade items include an upgraded mirror cell and alt-az mount. Discussed the roles that the volunteers might be expected to take on. Multiple volunteers came forwards to help coordinate activities. David will be scheduling another event, hopefully on a clear night so that it will be possible to check how everything works. Also need to work on a calendar, to determine public and club events and schedule volunteers to attend events as required. The four volunteers to coordinate will form a coordinating committee to cover these issues. There are also facilities available such as a classroom which might make it feasible to hold meetings combined with observing sessions. There is also a large field where the community college has held public star parties in the past. Long range options: is it possible to convert to a Cassegrain? There are many options available.

Youth Director - Jean London: Not present.

Newsletter Editor – Scott Kindt: Nominal.

SIGs – Scott Kindt: Nominal.

OMSI –Jan Keiski: Do we have more of the shirts from the starlight parade available for sale? Will try to make available at the next meeting. We now have a signed OMSI agreement.

Sister Club update – Jan Keiski: Nominal; it's now winter in the southern hemisphere.

Old Business

Update on Skamania Lodge request for telescopes / volunteers - Dawn Willard: Not present

Update on proposal for “Think out loud” radio show – Diana Fredlund: No further news.

Proposal for RCA / Clackamas Community College Haggart Observatory use – David Nemo / Sameer Ruiwale: Already discussed.

Vote on RCA joining “Astronomers without Borders” as affiliate - All. Motion: RCA to join as an affiliate member. Moved: David Nemo. Second: Greg Rhode. Motion passes 8-1-0.

Update on Calendar printing costs for larger sized calendar / different printers – Larry Froberg. Not present.

Review / Vote on 2011-12 RCA Budget – All. No action this meeting.

Tabled Business

TABLED: Create Mirror Making Machine usage instructions – David Nemo / Greg Rohde. This item will be removed from the agenda for now.

Update on costs / procedures for shipping a telescope to GAMA in Argentina - Margaret Campbell-McCrea / Larry Godsey. Leo Cavagnaro is interested in pursuing this, and will be researching from his end.

New Business

Proposal for “scholarships” (telescope awards) to qualified high-school or other students – Greg Rohde. We need to be consistent about how we make donations, and so we need to come up with some procedures. Has created a list of questions to be answered in order to construct such a set of procedures. Has also identified some specific high schools and contact teachers. What would be donated? Greg considers that any additional telescope donations that we might have beyond what is required to maintain sufficient lending stock could be considered “excess” and could be donated. Already have a sufficient number of SCTs, and really don't need any more for lending purposes. David Nemo: thinks this is a good idea, might want to consider broadening the criteria beyond just donations to schools. Have already made donations to other clubs. There are several school astronomy clubs; possibly we should donate to organizations rather than to individuals. Greg will be working on creating a comprehensive list of high school astronomy clubs or courses in the Portland area.

Information Fair feedback and discussion on continuing in the future – All. Mark polled the membership – 6 positive responses, 5 negative responses. Comments include requests for more emphasis on the swap meet, and requests for more public outreach events. We need to better understand what we get from the information fair in order to work out if we should do something different. Will discuss this item at a future meeting.

Adjournment

There being no further business, the meeting was adjourned at 9:00pm.

AUGUST 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 7pm Board Meeting OMSI Classroom 2	2	3	4	5 Noon Downtowners Luncheon Kell's	6 
7	8 7pm Astro Imaging SIG Beaverton Library	9	10	11	12 OMSI Star-party Rooster Rock and Stub Stewart	13  10am - 3pm Telescope Workshop
14	15 7:30pm General Meeting OMSI Planetarium	16	17 7pm Cosmology SIG	18	19	20
21 	22	23	24	25	26	27 White River Star Party
28 	29	30	31 Oregon Star Party			

September 2011

Aug 31-Sep 04	Wed. - Sun.	Oregon Star Party	Ochoco National Forest	
Sep 09	Friday	Downtowner's Luncheon	Kell's	Noon
Sep 10	Saturday	Telescope Workshop	Swan Island	10am-3pm
Sep 12	Monday	Board Meeting	OMSI Classroom 2	7pm
Sep 12	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
Sep 17	Saturday	OMSI Star Party	Rooster Rock and Stub Stewart State Parks	7:30pm
Sep 19	Monday	General Meeting	OMSI Auditorium	7:00pm
Sep 21	Wednesday	Cosmology SIG	Linus Pauling House	7pm
Sep 23-24	Fri. - Sun.	Camp Hancock	OMSI's Camp Hancock - John Day OR	
Sep 30-Oct 2	Fri. - Sun.	Maupin Star Party	Wapanita Air Strip near Maupin	

<http://www.rosecityastronomers.org>

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Oregon Museum of Science and Industry
1945 SE Water Ave
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The Rosette Gazette

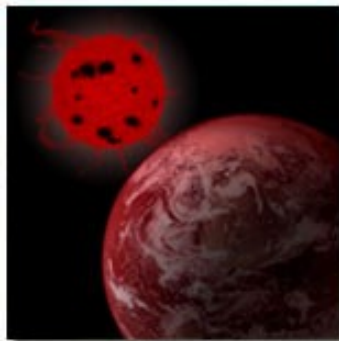
Volume 23, Issue 09

Newsletter of the Rose City Astronomers

September, 2011



Habitable Worlds in our Solar System and Beyond



Red dwarf star (M-star) with a planet.

(Credit to Scott Engle, "Living with a Red Dwarf Program", Villanova University.)

Prof. Schulze-Makuch takes you on a tour of our Solar System exploring how life may thrive or have thrived on habitable planets and moons such as Mars, Europa, Titan, and perhaps even Venus. Based on our knowledge of extremophilic life on Earth, we can only imagine how diverse life could be elsewhere - possibly using hydrocarbons as a universal solvent rather than water, and utilizing different energy sources and building blocks. Finally, he will discuss the possibility of life on exoplanets and the implications of the Fermi Paradox on the existence of complex life beyond our Solar System.

Dirk Schulze-Makuch (born 1964) is currently a professor at the School of Earth and Environmental Sciences at Washington State University. He is best known for his publications on extraterrestrial life, being coauthor of four books on the topic: *A One Way Mission to Mars: Colonizing the Red Planet* (2011), *We Are Not Alone: Why We Have Already Found Extraterrestrial Life* (2010), *Cosmic Biology: How Life could Evolve on Other Worlds* (2010), and *Life in the Universe: Expectations and Constraints* (2004).



In This Issue:

- 1....General Meeting
- 2....Club Officers
-Magazines
-RCA Library
- 3....Local Happenings
-Special Interest Groups
- 4....Star Parties
- 5....The Observers Corner
- 7....RCA Board Minutes
- 9....Calendars



RCA is a member of the Astronomical League.
<http://www.astroleague.org>

All are Welcome! Monday September 19th

New Member Meeting Begins: 6:30 pm Location: OMSI Planetarium

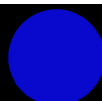
General Meeting Begins: 7:30 pm Location: OMSI Auditorium

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Trout Lake Star Party photo above courtesy Michael Minnhaar
Moon photos below courtesy David Haworth

Last Quarter Moon
Sept 20



New Moon
Sept 27



First Quarter Moon
Oct 03



Full Moon
Oct 11



CLUB OFFICERS

Office	Name	Email
President	Sameer Ruiwale	president@rosecityastronomers.org
Past President	Carol Huston	pastprez@rosecityastronomers.org
VP Membership	Ken Hose	membership@rosecityastronomers.org
VP Observing/Star Parties	Matt Vartanian	observing@rosecityastronomers.org
VP Community Affairs	Dawn Willard	community@rosecityastronomers.org
VP Communications	Mark Martin	communications@rosecityastronomers.org
Treasurer	Larry Godsey	treasurer@rosecityastronomers.org
Secretary	Duncan Kitchin	secretary@rosecityastronomers.org
Sales Director	Larry Froberg	sales@rosecityastronomers.org
Newsletter Editor	Scott Kindt	editor@rosecityastronomers.org
Media Director	Diana Fredlund	media@rosecityastronomers.org
New Member Advisor	Howard Knytych	newmembers@rosecityastronomers.org
Webmaster	Larry Godsey	webmaster@rosecityastronomers.org
ALCOR	Ken Hose	alcor@rosecityastronomers.org
Library Director	Jan Keiski	library@rosecityastronomers.org
Telescope Director	Greg Rohde	telescope@rosecityastronomers.org
Observing Site Director	David Nemo	sitfund@rosecityastronomers.org
IDA Liaison	Dawn Nilson	ida@rosecityastronomers.org
OMSI Liaison	Jan Keiski	omsi@rosecityastronomers.org
Magazines Director	Larry Godsey	magazines@rosecityastronomers.org
SIG Director	Scott Kindt	sigs@rosecityastronomers.org
Youth Programs Director	Jeannie London	youth@rosecityastronomers.org
Sister Club Liaison	Jan Keiski	sisterclubs@rosecityastronomers.org

RCA MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is a reduced rate subscription to Sky & Telescope and Astronomy magazines. The RCA member rate for Sky & Telescope Magazine is \$32.95 for one year or \$65.90 for two years. The RCA member rate for Astronomy magazine is \$34 for one year or \$60 for two years. For more information go to the RCA web site index and click on the link for magazines. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

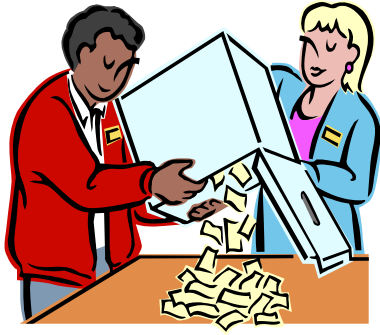
<http://www.rosecityastronomers.org/magazines/>
 Larry Godsey <magazines@rosecityastronomers.org>



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CDs and videos. These items can be borrowed by members through checkout at the general meetings for a period of one month with renewals available by phone or e-mail to the club library director. The RCA library is constantly growing through many donations and the purchase of new materials. A listing of library materials (PDF format) can be found at the library web page.

<http://www.rosecityastronomers.org/library.htm>
 Jan Keiski <library@rosecityastronomers.org>



Elections for RCA Officers

At the November General Membership Meeting we will be electing the following RCA officers for 2011:

- President
- Vice President - Membership
- Vice President - Community Affairs
- Vice President - Programming (Communications)
- Vice President - Observing Treasurer Secretary

If you are interested in running for one of these positions, or would like to nominate another member, please contact one of the members of the Nominating Committee listed below (via RCA Forum personal message or Forum email link) by September 30.



Diana Fredlund
 Greg Rohde
 Scott Kindt



Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, October 10th, 7pm
 Location: Beaverton Public Library
 Conference Room
 12375 SW 5th St
 Beaverton
 SIG Leader: Greg Marshall
 Email: ai-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/astroimage.htm>

Science Special Interest Group

When: On Hold
 Location: Technical Marine Service, Inc
 6040 N. Cutter Circle on Swan Island
 Portland
 SIG Leader: Dan Gray
 Email: sci-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/science.htm>

Downtowners Luncheon

When: Friday, October 7th, Noon
 Location: Kell's
 112 SW Second Ave. Portland
 SIG Leader: Margaret Campbell-McCrea
 Email: downtown-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/downtowners.htm>

New Members Special Interest Group

When: Monday, September 19th, 6:30pm
 Location: OMSI Planetarium
 Topic: TBD
 SIG Leader: Howard Knytych
 Email: newmembers@rosecityastronomers.org
http://www.rosecityastronomers.org/sigs/new_members.htm

Telescope Workshop

When: Saturday, October 8th, 10:00am - 3:00pm
 Location: Technical Marine Service, Inc.
 6040 N. Cutter Circle on Swan Island
 Portland
 SIG Leader: John DeLacy
 Assistant: Don Peckham
 Email: tw-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/tmw.htm>

Astrophysics / Cosmology SIG

When: Wednesday, September 21st, 7pm
 Topic: TBD
 Presented by: "TBA"
 Location: Linus Pauling House
 SIG Leader: Lamont Brock
 Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm



**OMSI Star Party
Autumnal Equinox Celebration
September 17, 2011 starting at 7:30 pm**

On Saturday evening, September 17, OMSI, Rose City Astronomers and Vancouver Sidewalk Astronomers will celebrate the beginning of autumn with a free Star Party! Rose City Astronomers and Vancouver Sidewalk Astronomers have organized Star Parties at Rooster Rock State Park and Stub Stewart State Park starting at 7:30 p.m. From beginners to experts of all ages, here's your opportunity to view the moon, stars and other celestial objects up close and personal through telescopes. Viewing highlights includes Venus, Saturn, waxing gibbous Moon, Jupiter and more! The International Space Station is always a possibility.

To reach [Rooster Rock State Park](#), take I-84 east of the Sandy River at exit 25. The park is located 22 miles east of Portland. To reach [L.L. "Stub" Stewart State Park](#), take US-26 west of Portland and turn right on OR-47. The park is located 23 miles west of Portland. The event is free, and there is a \$5 per vehicle parking fee for public. For possible weather cancellation, call (503) 797-4610 on August 12 after 4:00 PM to get the latest information.

[Star Parties Coming Soon!](#)

[OMSI - Autumnal Equinox](#) Sep 17

[Camp Hancock](#) Sep 23-25

[Maupin Dark Sky Star Party Weekend](#) Sep 30-Oct 02

[Stub Stewart Dark Sky Star Party](#) Oct 01

**Camp Hancock
September 23 - 25, 2011**

<http://www.rosecityastronomers.org/sp/hancock.htm>

Mail-in and Paypal registration deadline is Saturday September 17th. In-person payment deadline is September 19th at the General Meeting.

With the Pacific NW weather gradually slipping towards winter you can still get another weekend in late September to wind down your viewing season. September 23rd-25th will be the one of the latest scheduled RCA outings of the year and OMSI's Camp Hancock with meals and cabins fits the bill for a great outing on a cool fall weekend.

Dark skies, warm cabins, real bathrooms, warm showers, good meals and great friends top off the last outing of the year for RCA.

The facility fee is \$45 per night, per person, meals included. RV's, Camping or Bunkhouse, all the same price.



Camp Hancock is an OMSI sponsored field station for the promotion of science education. It is located about 150 miles from Portland and is exactly 2 miles east of the John Day River in Eastern Oregon in the Clarno Fossil Beds. Camp Hancock is NOT a resort hotel; it is a rustic kid's camp with 16 bunkhouses that sleep up to 14 people each. The bunkhouses are one room with bunks, mattresses, limited electricity, and heaters on a 60 minute timer.

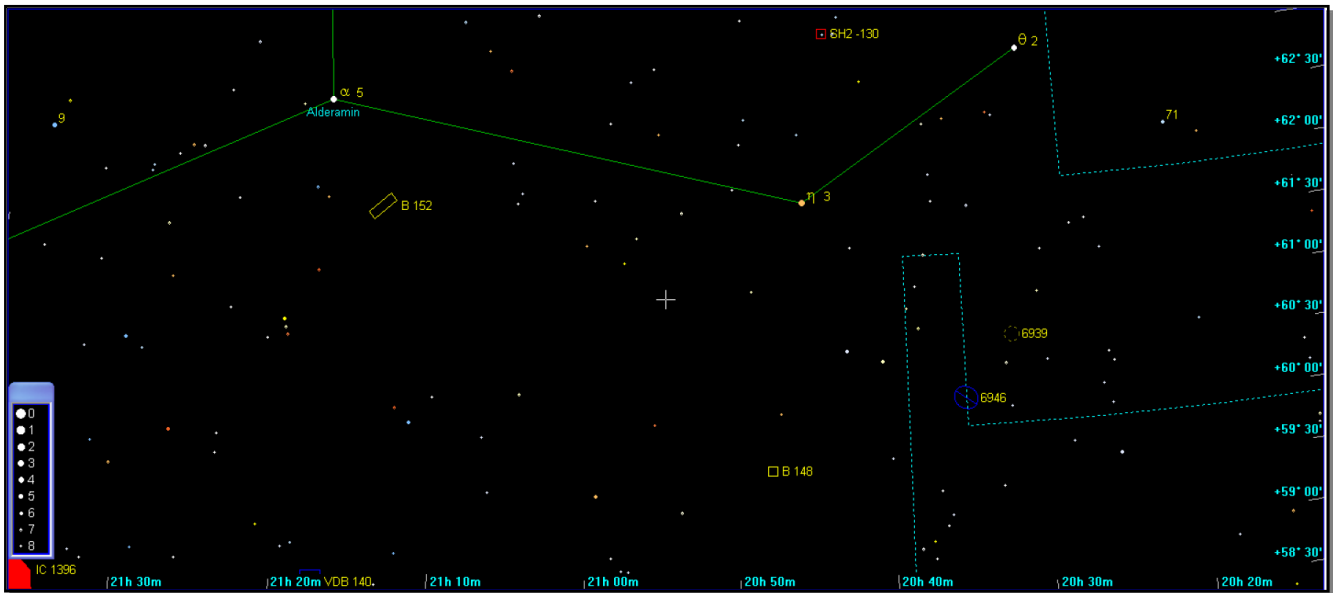
The bunkhouses are one room with bunks, mattresses, limited electricity, and heaters on a 60 minute timer.





NGC 6946, Arp 29 - the Firecracker Galaxy

Minding its own business in an out of the way corner of the sky, straddling the Cygnus-Cepheus border, is the lovely spiral galaxy NGC 6946. Also known as Arp 29 because of its elongated five arm structure, it's generally regarded as the fainter companion of NGC 6939, a lovely open cluster that it's the same low power field of view. The Megastar chart below shows their location, which is relatively easy to find.



I encourage everyone to take in this memorable view, especially from a dark observing site and to not only contemplate this delicate pair but to also consider the field of depth the view provides. NGC 6946 is 22 million light years away while 6939 is a mere 5800 light years distant.



The “Firecracker Galaxy” nickname comes from the nine supernovae that have been observed in 6946 starting in 1917, with the latest in 2008. It's heavily obscured by dust within the Milky Way, so it's visual magnitude of 9.6 would be considerably brighter, and 6946 much better known, if it were less obscured.

Think of our viewing perspective as you're looking at 6946 through your telescope: we're looking just above (or below, depending on your point of view) the plane of our Milky Way galaxy, through many layers of dust and gas. If 6946 were any more on the plane of our galaxy we wouldn't be able to see it all. It's not so different than when we look at objects

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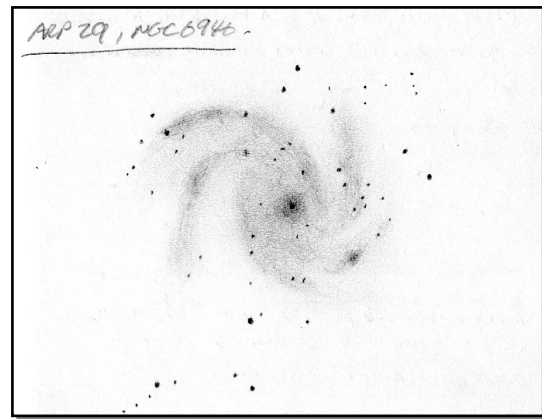
very low on our horizon – we’re looking through as much of Earth’s atmosphere as possible so the object is much dimmer than it would be if it were near the zenith.

6946’s surface brightness of 14.0 will give you a better idea of how faint this galaxy will appear in the eyepiece – it’s big and spread out at 11.6’ x 9.8’ so use your lowest power to locate it.

The color image shown above is by Robert Gendler, and can also be found online at:

<http://foldtime.com/astronomy/pod/NGC%206946%20Spiral%20Galaxy%20Fireworks%20in%20Cepheus.htm>.

6949 is not only interesting for its five spiral arms and somewhat odd overall shape, but also because it pays such big dividends for the skilled use of averted vision. This is often true for large face of galaxies but since 6946 has a smaller apparent size than M33 or M101 it may take a bit more patience for details to emerge. The more you look for details the more faint foreground stars you’ll also see, a reminder of how much Milky Way you’re looking through.

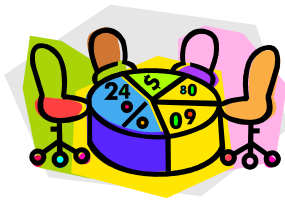


Repeated observations will start to bring out the ragged shapes of the spiral arms and perhaps an HII region or two. If you have a binoviewer you might try it as they often help low contrast features show up more easily. I found that medium powers around 250x brought out the most detail but you may find lower or higher magnifications to work best, depending on your scope and sky conditions.

William Herschel discovered both 6946 and 6939 on September 9, 1798 – which makes me wonder which one he saw first. At magnitude 7.8, 6939 is the more obvious of the two but then it depends on which direction he swept them up.

Perhaps they both came into his field of view at the same time, but it’s likely we’ll never know. However, you can recreate his observation from 213 years ago on the next dark and transparent night away from city lights and discover them for yourself.





Minutes of the Rose City Astronomers Board

July 11th 2011

Held at OMSI Classroom 2

Chair : David Nemo
Secretary : Duncan Kitchin

Board Members Present

David Nemo (Observing Site Director)
Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Howard Knytych (New Member Advisor)
Dawn Willard (VP Community Affairs)
Scott Kindt (Newsletter Editor)
Greg Rohde (Telescope Library)
Duncan Kitchin (Secretary)
Larry Froberg (Sales Director)
Jan Keiski (Library Director, OMSI & Sister Club Liaison)
Diana Fredlund (Media Director)
Mark Martin (VP Programming)
Ken Hose (VP Membership)

Call to Order

The meeting was called to order at 7:07pm by David Nemo and, there being 12 board members present, the quorum requirement of 9 was declared to be met.

Approval of Agenda

The agenda was approved by unanimous consent.

Approval of Minutes

Moved: Approve minutes from the June 2011 board meeting. Moved : Duncan, Second: Diana. Motion passes 12-0-0

Directors' Reports

Secretary's Report – Duncan Kitchin: **Quorum (9)** met with 12 voting members present. Duncan Kitchin will not be present for next month's meeting. Ken Hose volunteered to take minutes.

Treasurer's Report – Larry Godsey: Financial information for June circulated. Unless there are last minute corrections, this will be the final report submitted to the IRS. Profit and loss sheet also included. Every item was under budget this year. There is \$500 for shirts under sales which is not yet reported and will be pushed into next year. There is also a detail showing every payment and receipt, and a final balance sheet for the year.

VP Programming – Mark Martin: Report submitted and available on the web. This month, Ken Hose will be talking about exoplanets. For August, Matt Vartanian will be talking on the subject of "Pushing the Limits of Your Observing Ability" presenting quantitative information about observing abilities under different conditions.

September will be Professor Dirk Schulze-Makuch from Washington State University. Pre-orders for the book will be cut off after this month's meeting, so that the books will be available at the August meeting. October will be Professor Jeff Barnes of OSU, who will be talking about the Mars Science laboratory. The MSL's primary mission is to determine if Mars currently is or ever was habitable by microbes. In November, David Haworth will be talking about spectroscopy. In January, we have Rod Mollise, otherwise known as "Uncle Rod" who has written many books and has a popular astronomy blog. In February, Richard Berry will be talking about Herschel's telescopes. In March, we have Professor Peter Ward from the University of Washington, who has authored many books, including two with Don Brownlee, on the subject of microbial life in the universe. Mark is trying to arrange Professor Dimitrius Psaltis, who is an Associate Professor of Astronomy and Physics at the Steward Observatory at the University of Arizona, sometime next year. Also trying to get Professor James Schombert from the University of Oregon Department of Physics.

VP Observing – Matt Vartanian: Not present.

VP Community Affairs – Dawn Willard: Two star parties at the end of the month, both on the same night before the Trout Lake star party. In early August, there is another event being planned for the 4th or 5th. There is also an event planned for the Evergreen museum in September.

VP Membership – Ken Hose: Last month, we had 46 renewals and 6 new members. At this time last year, we had 42 renewals, and 52 this time the year before that. Total membership currently stands at 364 families. We brought in a total of \$1254 in dues in the last month. The number of PayPal transactions is at about 25%. Will keep taking renewals, and those who have not reviewed by September will be dropped from the forum.

Alcor – Ken Hose: No new observing logs submitted.

New Member Advisor – Howard Knytych: We have a new member with a 10" LX200 somewhere near Hood River. Looking for assistance on how to use it. Howard has recommended that we meet at Maupin or Trout Lake, but it may be difficult to get to that location. Can we arrange to have a member volunteer to help? We could post a message on the forum to request assistance. Howard is working on a presentation on summer observing highlights for the next new member meeting in the planetarium. Will talk to Jim Todd about using Digistar.

Media Director – Diana Fredlund: New release is out for this month. Is supplying information for TV event listings. Diana requests bios and abstracts for upcoming speakers from Mark to help with promotion. Also titles for new

(Continued on page 8)

(Continued from page 7)

member presentations.

Sales – Larry Froberg: \$264 in merchandise sales, plus \$517 in t-shirts. Have currently approximately 15 book pre-orders at this point. May order 3-5 additional. At the end of this year, Larry would like to step down after running sales for the last three years. Will make an announcement at the next meeting.

Book Library – Jan Keiski: Nominal. Ken Hose: has a DVD from the Teaching Company that he is going to donate to the library.

Telescope Library – Greg Rohde: No donations this month. Has been going through inventory and setting up a tracking system with a telescope numbering system. Will be emailing Larry Godsey a list of inventory for IRS purposes. Has 20 telescopes in circulation and 10 telescopes in non-circulation, including the 12" LX200 being used for public outreach. Will start labeling the telescopes with unique numbers.

IDA – Dawn Nilson: Not present, but report via Larry Godsey: planning an IDA forum sometime in late spring.

Magazine Subscriptions – Larry Godsey: Nominal.

Webmaster – Larry Godsey: Nominal.

Site Committee – David Nemo: Nominal.

Youth Director - Jean London: Not present.

Newsletter Editor – Scott Kindt: Please send contributions for the newsletter to Scott well in advance. Would like to have contributed reports from star parties, or announcements. Pictures would also be good.

SIGs – Scott Kindt: Cosmology SIG this month is turned into a potluck and roundtable. Greg Rohde has a request from the telescope workshop SIG: would like to buy a rotary table for a milling machine. A 6" rotary table would cost \$275. Will bring this up in the budget discussion.

OMSI –Jan Keiski: OMSI Star Parties: there were 10 scopes at Stub Stewart, 15 at Rooster Rock, approximately 200 people at each event. For the July meeting, will have Adam covering for Jim in the planetarium.

Sister Club update – Jan Keiski: GAMA is getting some good skies, and is holding monthly outings.

Old Business

Update on Skamania Lodge request for telescopes / volunteers - Dawn Willard. No additional requests. Will remove this item from the list.

Proposal for RCA / Clackamas Community College Haggart Observatory use – David Nemo / Sameer Ruiwale. On Friday night there were about 6 people out at Haggart for another orientation evening. Will continue next Friday. David has received a draft memorandum of understanding from the college. Will post on the forum for review. Larry Godsey: is there any expected expenditure? Not at this time.

Update on Calendar printing costs for larger sized calendar / different printers – Larry Froberg. Larry will investigate over the next couple of weeks.

Review / Vote on 2011-12 RCA Budget – All. Proposed budget has been circulated by Larry. May want to adjust the budget to add in the \$275 request from the telescope workshop SIG.

Budget shows a \$1000 deficit for the year to account for additional programming, and which is easily offset by surpluses from last year. Budget can be adjusted later if required. There was an apparent shortfall in membership dues versus budget in the June numbers, but that is accounted for by the additional month. Note that Astronomical League dues are the largest single expenditure. Cost is \$5 per member if everybody is a member. Cost would be \$7.50 per member on an individual basis. This is still discounted compared to member at large price of \$30. If we had a subset of members as AL members, we would still have an ALCOR. We will add an item for discussion in next month's meeting. We are currently paid up through June 2012, so there is no rush to make any determination. Motion to accept the budget as proposed. Moved: Larry Godsey. Second : Greg Rohde. Motion passes 12-0-0.

Contact Dawn Nilson to ask about the proposed dark sky conference in conjunction with a speaker for RCA – Sameer.

Create a list of high-schools with astronomy programs or clubs in Portland metro area for possible telescope award donations – Greg Rohde. Greg is still working on this item; many of the people at the schools are difficult to contact at this time of year. Discussion: what are the criteria? Still to be determined whether donations should go to groups or individuals. Alternatively could start with equipment to be donated and look for a group or individual that would be well matched as a donation.

Tabled Items

Update on costs / procedures for shipping a telescope to GAMA in Argentina - Margaret Campbell-McCreca / Larry Godsey

New Business

Vote on 2011-12 final RCA annual budget – Larry Godsey / All. Already discussed.

Discussion on printing classified ads in the Gazette. What is club policy, what types of ads, etc. Discussion: sense of the board is that this is probably not worth pursuing. Larry Godsey: alternative proposal to create a page on the website specifically for this purpose, with limits on the nature of advertisements, and the time that they are displayed. No action at this time.





Astronomy Day (Jul 23rd 2011) Logistics – Sameer / Dawn. Dawn is in need of assistance; Sameer is unavailable this year. Dawn will send out a broadcast message for volunteers. Ken Hose and David Nemo may be available.

2012 RCA Star Party Schedule – Matt Vartanian. Not present, but report from Larry Godsey that we have an offer from Camp Hancock for the spring, but the date is unsuitable due to Moon phase and Larry is negotiating an alternate date.

Adjournment

There being no further business, the meeting was adjourned at 9:04.

SEPTEMBER 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4 	5	6	7	8	9 Noon Downtowners Luncheon Kell's	10 10am - 3pm Telescope Workshop
11	12 7pm  Board Meeting OMSI Classroom 2 7pm Astro Imaging SIG Beaverton Library	13	14	15	16	17 OMSI Starparty Rooster Rock and Stub Stewart
18	19 7:30pm General Meeting OMSI Planetarium	20 	21 7pm Cosmology SIG	22	23	24
25	26	27 	28	29	30	

October 2011

Sep 30-Oct 2	Fri. - Sun.	Maupin Star Party	Wapanita Air Strip near Maupin	
Oct 3	Monday	Board Meeting	OMSI Classroom 2	7pm
Oct 07	Friday	Downtowners Luncheon	Kell's	Noon
Oct 08	Saturday	Telescope Workshop	Swan Island	10am-3pm
Oct 10	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
Oct 17	Monday	General Meeting	OMSI Auditorium	7:00pm
Oct 19	Wednesday	Cosmology SIG	Linus Pauling House	7pm

<http://www.rosecityastronomers.org>

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1945 SE Water Ave
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The Rosette Gazette

Volume 23, Issue 10

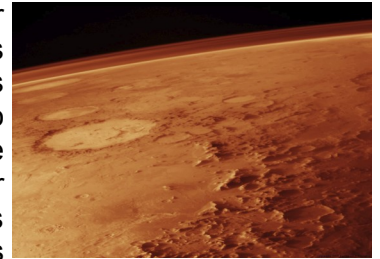
Newsletter of the Rose City Astronomers

October, 2011



The Coming Decade in Mars Exploration: Mars Science Laboratory and Beyond

The past decade has been an extremely active one for Mars exploration with Mars Global Surveyor, Mars Odyssey, Phoenix, Mars Express, and the Mars Reconnaissance Orbiter. The coming decade promises to be a very active one as well. The Mars Science Laboratory (MSL) is scheduled to launch late this year for its nominal one Mars Year mission on the surface. MSL is a very large rover, which will explore Gale Crater and its central mound with a highly sophisticated array of instruments. It will pioneer a new entry, descent, and landing (EDL) system that involves roughly horizontal controlled flight and a final "sky crane" system to lower the rover onto the surface, ready to operate. The EDL engineering for MSL involved intensive atmospheric modeling studies that ultimately demonstrated that the system was sufficiently robust to allow a low-risk landing at any one of the four candidate landing sites. The OSU Mars atmospheric modeling group played a key role in these studies over the last 4 years. Once on the surface MSL will be able to go significantly beyond the Mars Exploration Rovers in searching for possible evidence of habitability and life, past and present.



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Following MSL, the MAVEN mission will be launched in 2013 to carry out studies focused on the upper atmosphere of Mars and the escape of gases from that region. In 2016, a joint U.S.-European era of Mars exploration will commence with the launch of the ExoMars Trace Gas Orbiter mission. This mission is targeted at the study of methane in the Mars atmosphere, a possible indicator of biological activity, as

(Continued on page 3)



RCA is a member of the
Astronomical League.
<http://www.astroleague.org>

All are Welcome! Monday October 17th
General Meeting Begins: 7:30 pm Location: OMSI Auditorium

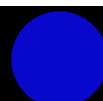
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Trout Lake Star Party photo above courtesy Michael Minnhaar
Moon photos below courtesy David Haworth

Full Moon
Oct 11

Last Quarter Moon
Oct 18

New Moon
Oct 26

First Quarter Moon
Nov 02



CLUB OFFICERS

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Youth Programs Director	Jeannie London	youth@rosecityastronomers.org
Sister Club Liaison	Jan Keiski	sisterclubs@rosecityastronomers.org

RCA MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is a reduced rate subscription to Sky & Telescope and Astronomy magazines. The RCA member rate for Sky & Telescope Magazine is \$32.95 for one year or \$65.90 for two years. The RCA member rate for Astronomy magazine is \$34 for one year or \$60 for two years. For more information go to the RCA web site index and click on the link for magazines. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

<http://www.rosecityastronomers.org/magazines/>
 Larry Godsey <magazines@rosecityastronomers.org>



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CDs and videos. These items can be borrowed by members through checkout at the general meetings for a period of one month with renewals available by phone or e-mail to the club library director. The RCA library is constantly growing through many donations and the purchase of new materials. A listing of library materials (PDF format) can be found at the library web page.

<http://www.rosecityastronomers.org/library.htm>
 Jan Keiski <library@rosecityastronomers.org>

(Continued from page 1)

well as other atmospheric constituents. Finally, in 2018 NASA and ESA will collaborate on a rover mission designed to cache samples for a future sample return mission.



Biography

Jeffrey R. Barnes
Professor of Atmospheric Sciences
College of Oceanic and Atmospheric Sciences
Oregon State University



Jeffrey graduated from Iowa State University in 1975 with a B.S. in Physics. He then received an M.S. in Planetary Sciences from the California Institute of Technology in 1977. In 1977 he began working on the Viking Mission at the Jet Propulsion Laboratory in 1977. In 1983 he received a Ph.D. at the University of Washington in Atmospheric Sciences, with a dissertation on studies of the Mars atmosphere. After being a Post-Doc at NASA-Ames Research Center, he went on to OSU as an Assistant Professor in 1984. He has been involved in a number of NASA missions since Viking, including Mars Orbiter, Mars Pathfinder, Mars Climate Orbiter, and currently the ExoMars Trace Gas Orbiter. His research involves modeling of the Mars atmosphere at a wide range of scales and analysis of spacecraft data.

Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, November 14th, 7pm
Location: Beaverton Public Library
Conference Room
12375 SW 5th St
Beaverton
SIG Leader: Greg Marshall
Email: ai-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/astroimage.htm>

Science Special Interest Group

When: On Hold
Location: Technical Marine Service, Inc
6040 N. Cutter Circle on Swan Island
Portland
SIG Leader: Dan Gray
Email: sci-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/science.htm>

Downtowners Luncheon

When: Friday, November 4th, Noon
Location: Kell's
112 SW Second Ave. Portland
SIG Leader: Margaret Campbell-McCrea
Email: downtown-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/downtowners.htm>

New Members Special Interest Group

When: Monday, November 21st, 6:30pm
Location: OMSI Planetarium
Topic: TBD
SIG Leader: Howard Knytych
Email: newmembers@rosecityastronomers.org
http://www.rosecityastronomers.org/sigs/new_members.htm

Telescope Workshop

When: Saturday, November 12th, 10:00am - 3:00pm
Location: Technical Marine Service, Inc.
6040 N. Cutter Circle on Swan Island
Portland
SIG Leader: John DeLacy
Assistant: Don Peckham
Email: tw-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/tmw.htm>

Astrophysics / Cosmology SIG

When: Wednesday, October 18th, 7pm
Topic: TBD
Presented by: "TBA"
Location: Linus Pauling House
SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm

A Camp Hancock Dark Sky Adventure

By Mark Martin

The Fall session of the RCA Dark Sky Camp at OMSI's Camp Hancock Field Station was held on Friday, September 23rd through Sunday, the 25th. I was fortunate enough to be able to leave Portland mid-day on Friday and arrived at Camp Hancock late Friday afternoon. This gave me plenty of time to set up my telescope, choose a spot to sleep in one of the cabins, and chat with friends new and old. The temperatures when I arrived were in the upper 80's and the forecast promised beautiful clear night-time weather. I excitedly contemplated the evening's possibilities as I backed my car up onto "The Ridge" and deposited my 16" Meade Lightbridge onto one of the vacant observing spots. The telescope was my first priority but I took a break mid-setup to locate a place to sleep. By that time, about 20 people had arrived and it was easy to find a nice spot in one of the nearby cabins. Altogether, 28 people attended over the course of the weekend, which meant that there were plenty of nice people to share conversations with but no difficulty finding space for people or telescopes. This made for a very relaxing and enjoyable weekend.

After dinner, I climbed back up the hill for last minute collimation and finder alignment and then settled in for the evening's festivities. There were 6 of us on "The Ridge" for most of the night with occasional visitors from other parts of the camp. All of us nearby agreed that the conditions were spectacular and exceeded the forecast. The transparency was slightly diminished early on, especially toward the southern horizon, partly due to wildfires to the south and west that continued to smolder. In fact, when I drove into camp in the afternoon, I was somewhat shocked to see that the area surrounding Camp Hancock was completely blackened and burned from the fire that had passed through a few weeks earlier. But the transparency improved dramatically within a short time. And the seeing was fantastic throughout the night. Temperatures were comfortable all night and I only needed a light jacket and some warmer pants from around 11 p.m. on.

I spent most of the night sharing and trading views with my neighbors. We began by tracking down the supernova in M101. This was subtle but clearly visible. We then moved on to amazing views of Comet Garradd; the Andromeda Galaxy and its companions; the Dumbbell Nebula; Bode's Galaxy (M81) and the Cigar Galaxy (M82); the globular clusters M13 and M15; the Perseus Double Cluster; the Alpha Persei Association; the Owl Cluster (NGC 457), which looks like Cookie Monster to

me; the beautiful Messier open clusters M35, M36 M37, and M38 in Auriga and Gemini; and the always incredible Orion Nebula. I also managed to squeeze in some objects from the Caldwell list -- the Blue Snowball Nebula in Andromeda; the very bright, blue-green Cat's Eye Nebula; the bright Bow-Tie Nebula; the brighter galaxies of the Deer Lick Group, featuring NGC 7331, which neighbor the famous Stephan's Quintet; the enormous Silver Coin Galaxy NGC 253; and the large ghostly galaxy NGC 247. These were the highlights. There were other observations that were only slightly less spectacular.

I ended the evening around 4 a.m. with an absolutely breathtaking view of Jupiter that I shared with anyone who dared to sear their viewing retina with the blinding spotlight visible through my scope. The Great Red Spot was prominently situated near its meridian and very clear. And there were several intriguing undulations inside and outside of the bands. It was just incredible and a wonderful way to end the night. Afterwards, I covered my scope and stumbled off to bed. I stayed up far too late but just couldn't help myself.

The following morning, small groups set out to explore the trails surrounding camp. I opted to hang around camp instead and had a lot of fun discussing the previous night, aspirations for Saturday night, and whatever other topics the conversation meandered through. The day was clear and even warmer than the day before but the night's forecast was for cooler temperatures and clouds. We monitored the increasingly pessimistic forecast throughout the day but kept our fingers crossed that somehow the magic of Camp Hancock would overcome the meteorological prognostications. However, the forecast was right. Saturday night was mostly clouded over with thin clouds that teased us by quickly revealing and then covering moderate-sized patches of the sky. I caught quick views of the Andromeda galaxy and its companions, the Ring Nebula (M57), and the Hercules Cluster M13; waited an hour or two for the sky to clear; and then went to bed. Although it would have been nice to have another beautiful evening of observing, the conditions were very pleasant and it was nice to catch up on some sleep after the previous very long night.

The clouds thickened on Sunday morning and rain began to fall as I headed back to Portland around 8:30. It had been another unforgettable weekend at Camp Hancock and I can't wait for the next opportunity in the Spring.

THE ANTLIA CLUSTER

by Leo Cavagnaro

Unveiling the Third Nearest Cluster of Galaxies Observing its Brightest Members

Imagine yourself at a star party somewhere on the planet where the southern sky is visible, or at least the zone around -40 degrees of declination is above the horizon. You will surely hear other observers talking about and planning observations of the most-known galaxy groupings like those situated in Virgo, Fornax or Perseus. If you are familiar with this kind of structure in the night sky, there is a good opportunity to add another cluster to your list carrying out an optical survey looking for a less known and fainter cluster which is not frequently mentioned in the observers' world, the Antlia Cluster.



The Constellation Antlia in the autumn sky. In the picture I have labeled the stars of the constellation and some conspicuous objects in the vicinity like the Eta Carinae nebula and NGC 5139, Omega Centauri. North is up.

Image used with permission from the Photopic Sky Survey. ©Nick Risinger, skysurvey.org

The literature states that this is the third nearest populous galaxy cluster in the whole sky, so I decided to carry out my own project to study this entity in detail using a common telescope and, like with other observing projects, have an empirical description of it, thus finding out how many and which members are in the range of an 8-inch telescope, getting conclusions and saving observations for other observers or for future new observations of this target. The inconspicuous constellation Antlia, visible during the autumn months in the southern hemisphere and composed of stars with magnitudes between 4.3 and 4.8, hosts this galaxy grouping situated 35Mpc away (about 115 million light years), described as "a beautiful, small, nearby cluster of Bautz -Morgan type III" (Hopp & Materne 1985, Nakazawa et al. 2000) that is the third nearest galaxy cluster to us, inhabiting the eastern part of this constellation.

Antlia cluster, also known as ACO S 0636, is centered at R.A. 10h 30m 01s Dec. $-35^{\circ} 19' 35''$. With a galactic latitude of 19 degrees it is not too far from the Zone of Avoidance (ZOA), a narrow band on the sky in which very few galaxies were found and catalogued and produced by the large clouds of gas and dust along the plane of the Milky Way.

I spent two nights observing the 1-degree field under analysis. The first night, the winter night sky was amazingly clean, with a very good transparency and a very good seeing. This made possible to enjoy the starry sky with the naked eye and get the best view ever of the zodiacal light from the nearby site before starting with the observing project.

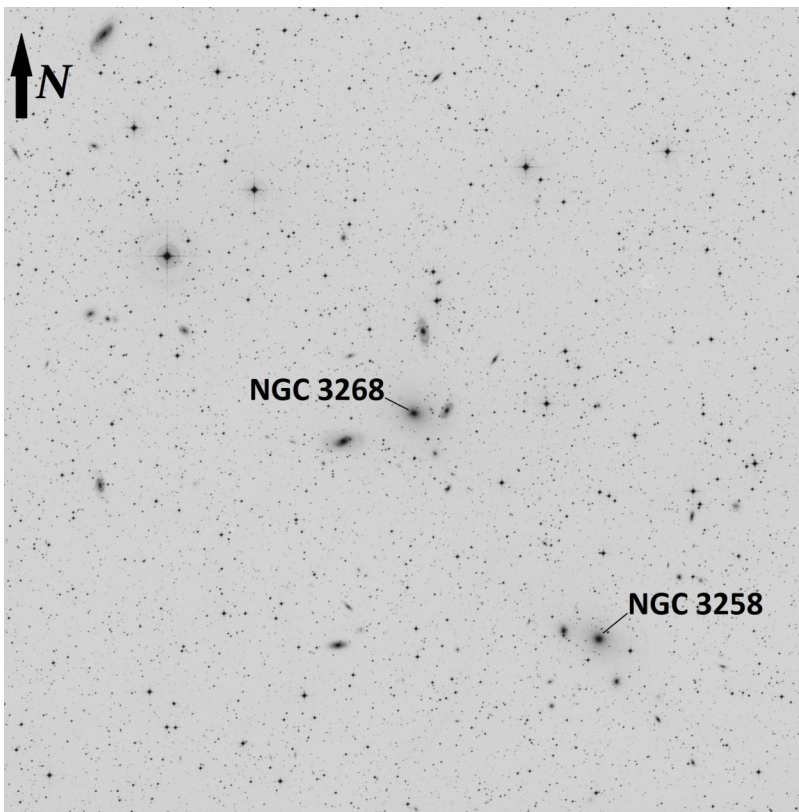
I began the observation with the cluster at 63 degrees of altitude at only 6 minutes of the ending of the Astronomical Twilight. The first step was to identify constellation Antlia whose stars, although faint, were clearly visible to the naked eye. Once the constellation was identified I focused on the region where the cluster lies. To make this possible it is necessary to fix our view on the eastern part of the constellation and identify the stars ι and α Antliae that have similar brightness (visual magnitudes 4.6 and 4.3 respectively). Another "key" star to find the zone under study is the 5.3 magnitude star HD 90132 which is also visible to the naked eye appearing fainter than the other two (see picture on first page).

The Core of Antlia Cluster

According with F. Faifer *et. al.* in their paper "**GEMINI-GMOS Spectroscopy in the Antlia Cluster**" (2008), Antlia exhibits a complex structure consisting of several subgroups, the most important ones being dominated by the giant ellipticals NGC 3258 and NGC 3268 as it is indicated in the DSS image here.

The search of the field was made using 42x that offers a 1.12 degree field of view in my 8-inch telescope. The field of the core of the cluster was recognized observing a line of three stars indicated with a red ellipse in **Figure 1**, a chain of stars with magnitudes 8.6, 11 and 12.2. A sort of parallelogram composed by some of the brightest stars in the field was also identified. Actually, the star HD 91249 indicated with a blue arrow in **Figure 1** (spectral type: K0III/IV) is the brightest in the field with a magnitude of 7.2. Other interesting feature there is an arrangement of stars that form a "Y-shaped" structure (indicated by blue lines in **Figure 1**). At this magnification, patches of diffuse nebulosity appear in the zone coincident with the positions of the galaxies NGC 3268 and 3267.

A few other NGC galaxies populate the region surrounding these galaxies.



DSS image of the Antlia Cluster (1 degree field)



NGC 3269

This member of the cluster is an SB0-a galaxy according to the [Wolfgang Steinicke's Revised NGC and IC Catalog](#). At 42x it was glimpsed using averted vision appearing as a very small and faint patch of light. I could find the accurate position in the field using the stars enclosed by the gray square in **Figure 1**. With a magnitude of 12.3 and a surface brightness of 13.2 mag per square arc min it was hard to ob-

serve at this magnification. At higher magnification (78x) it was more easily seen appearing little elongated. Always averted vision was necessary.

In the paper **“The Globular Cluster Systems of NGC 3258 and NGC 3268 in the Antlia Cluster”** B. Dirsch, T. Richtler and L.P. Bassino state that this galaxy shows a compact absorption feature 4" in size that at the distance of NGC 3269 it would have a diameter of approximately 500pc. The existence of this dusty region in a galaxy which otherwise is devoid of gas and dust is by itself peculiar and it is an intriguing question whether this cloud is indeed in NGC3269 or whether it is a foreground object in the Galaxy.

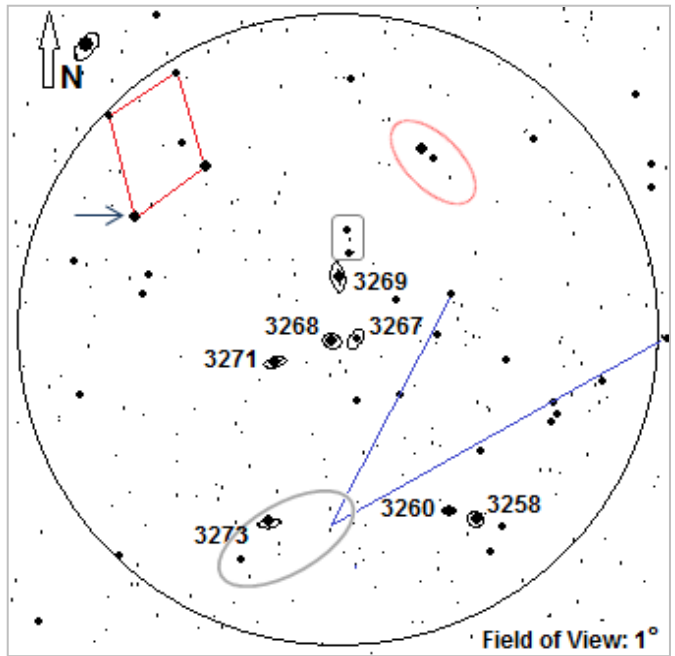


Figure 1



NGC 3268 & NGC 3267

John F. W. Herschel discovered this galaxy in 1835, an E2 galaxy according to the [Wolfgang Steinicke's Revised NGC and IC Catalog](#). This 11.5 magnitude (SB: 13.8 mag per square arc min) member

who dominates the northern subgroup of the cluster was visible with its close, fainter and harder to see neighbor NGC 3267 applying averted vision, which is visible to the right of NGC 3268 in the picture here. Appearing a little fainter than NGC 3271 which was (for me) the brightest galaxy in the cluster, it looked somewhat similar to that galaxy with smooth brightness and round in shape. This pair was better viewed at higher magnification (78x) with NGC 3268 being brighter and more easy to see. On the other hand, NGC 3267 requires a more detailed view and averted vision to improve the detection looking smooth in appearance.



NGC 3271

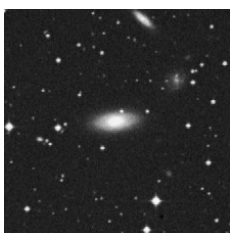
Although faint, this SB0 galaxy (according to the [Wolfgang Steinicke's Revised NGC and IC Catalog](#)) was easier to detect and observe at 42x appearing rather round and like a featureless small patch of light.

This 11.8 mag. SB: 13.6 mag per square arc min galaxy was observed with 78x when it was at an altitude of about 37 degrees appearing more obvious and sharper with its core looking a little brighter for moments. It is also catalogued as IC 2585.



NGC 3258 & NGC 3260

In the southwest corner of the Antlia Cluster core's field we find NGC 3258 which is the dominating galaxy in the southern subgroup, an E1 type galaxy according to the [Wolfgang Steinicke's Revised NGC and IC Catalog](#) with a magnitude of 11.5 and a surface brightness of 13.7 mag per square arc min. This galaxy and its nearby companion were visible through my 8-inch working at low power (42x) and using once again averted vision. Like the other members of the cluster, NGC 3258 and NGC 3260 looked very faint and small. At 78x both galaxies were more clearly visible looking rather similar with a roundish shape. NGC 3258 looked a little bigger and for moments appeared sharper than its companion. Both galaxies were discovered by John F. W. Herschel in 1834.



NGC 3273

Also catalogued as PGC¹ 30992, this SB0 galaxy, according to the [Wolfgang Steinicke's Revised NGC and IC Catalog](#), was in the observing scenario. Being perhaps the faintest of the major galaxies in the cluster (m_v: 12.5 mag SB: 12.5 mag per square arc min), I could glimpse it for moments using averted vision when it was at an altitude of about 45 degrees. **Figure 1** shows with a gray ellipse some stars that were useful to find the zone where this galaxy lies. Even at 78x this galaxy was very faint but it is within reach of an 8-inch telescope under good sky conditions.

Dwarf Galaxies in the Antlia Cluster

In the paper **"Two Confirmed Compact Elliptical Galaxies in the Antlia Cluster"**, A. V. Smith Castelli, F. R. Faifer, L. P. Bassino, G. A. Romero, S. A. Cellone and T. Richtler, researchers of Universities in Argentina and Chile, confirm the existence of two compact elliptical (cE) galaxies in the central region of the Antlia cluster. Thus, Antlia becomes the nearest galaxy cluster harboring more than one cE galaxy among its galaxy population.

Compact elliptical (cE) galaxies constitute a very rare type of objects as only about a dozen have been identified up to a distance of 100 Mpc (e.g. Chilingarian et al. 2007, 2009; Price et al. 2009). The prototype of this class is M32 (but see Graham 2002) and their main characteristics are a high central and effective surface brightness for their luminosities, and a high degree of compactness. The confirmed galaxies are named FS90² 110 & FS90 192 and are shown in the DSS images here.

Table 1 "FS90 galaxies in our MOSAIC field of the central Antlia region" of the paper

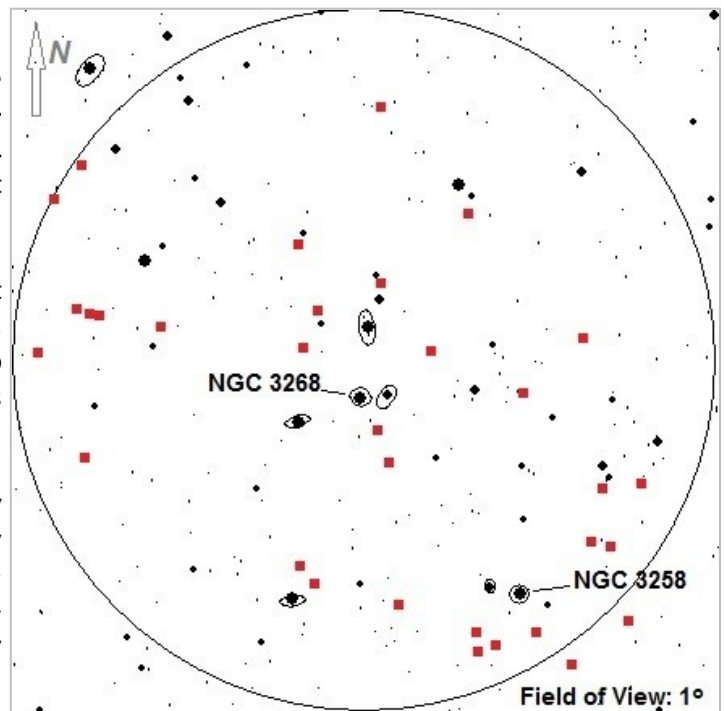
Galaxy populations in the Antlia cluster. I. Photometric properties of early-type galaxies (Analia V. Smith Castelli et. Al.) lists some FS90 galaxies including the two compact galaxies. Total Washington T1 magnitudes for these galaxies, taken from [CT1 photometry of Antlia early-type galaxies \(Smith+, 2008\)](#), are 15.49 for FS90 110 and 16.7 for FS90 192. These are targets reserved for advanced astrophotographers or skilled observers with big aperture telescopes.



Getting Deeper. High Power Looking for Faint Members of the Cluster

I spent the second observing night to scan the 1-degree field using 106x. The goal, to determine how many and which galaxies, visually identified on the DSS image and shown in **Figure 2**, were visible through an 8-inch telescope under the observing conditions that night. The disadvantage issue was the relatively low altitude of the cluster at the moment of the observation of these galaxies, about 35°.

A short chain of faint galaxies in the eastern edge of the field (middle and on the left edge of the field, see **Figures 1 and 2**) was out of reach of my 8-inch telescope. **Figure 3** shows the position of NGC 3258C, about 18 arc min east-northeast of NGC 3268. This SBa galaxy has a magnitude of 13.7, SB: 13.4 mag per square arc min and it was not visible in my 8-inch telescope. About 24 arc min to the east-southeast of NGC 3268 lies NGC 3258D, another challenging galaxy for an 8-inch mirror. This SBB galaxy has a magnitude of 13.2 and a surface brightness of 13.4 mag per square arc min, so although something appears to be barely glimpsed momentarily I think it is a faint galaxy for an 8-inch telescope. However, this galaxy should be visible with this kind of telescope under a sky with a limiting magnitude of 6.6 or even darker according to the "Threshold Method", one of the ODM³ methods. NGC 3258D can be a good target to test the sky quality and the visual acuity of the observer.



When I observe the sky I have a motto, **"if I am doubtful about the visibility of an object that I am trying to see at the eyepiece field of my telescope I must say "I didn't see it"**. This was the case with NGC 3258D

Figure 2. Field of the Antlia Cluster. I have plotted with red squares the galaxies visually identified in a DSS image. Even more galaxies, very faint and small, are situated in this field.

(explained above) and with a seemingly very faint galaxy, LEDA⁴ 83082, which lies about 6 arc min to the south-southwest of NGC 3268. Observing carefully in the position where this galaxy lies something appears to be there. If we are guided by data about the magnitude of this object (around 14.9) it is without a doubt a faint galaxy for an 8-inch telescope so maybe I saw the faint star immediately to the east (?). Another possibility is the fact that to be at the threshold of visibility played a trick on my eye. For sure bigger telescopes are necessary for detecting this faint member of the cluster and be sure it is visible for visual observers.

NGC 3257, an E/SB0 galaxy located about 3.5 arc minutes to the south-southwest of NGC 3258 has a magnitude of 13.1 and a surface brightness of 13.1 with an angular dimension of 1.0 x 0.9 arc min (Revised NGC Data <http://spider.seds.org/ngc/revngcic.cgi?NGC3257>). According with some ODM methods this object should be visible through an 8-inch telescope under a 6.2 limiting magnitude sky. Observing carefully using 106x a very faint and small nebulosity could be glimpsed for moments using averted vision but a new observation using a bigger telescope would be useful for a sharper view.

Autumn in the southern hemisphere is the best season of the year to observe constellation Antlia and the cluster situated there. It is definitively a rather obscure target for observer with common telescopes but it is a good opportunity to aim our optical instruments there and see deeper into our nearby universe.

Thank you to Rose City Astronomer Jan Keiski for grammar checking.

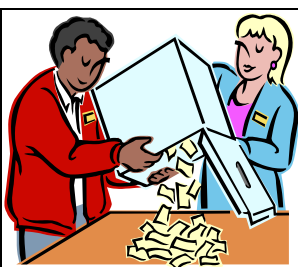
1_ **PGC**, Catalogue of Principal Galaxies. It constitutes the basis of the "Third Reference Catalogue of Bright Galaxies" (RC3). It lists equatorial coordinates for the equinoxes 1950 and 2000 and cross identifications for 73197 galaxies.

2_ **FS90** is a catalogue compiled by Fergusson and Sandage in 1990. They identified 375 galaxies within a projected area of 8 Mpc² that are listed in the FS90 Antlia Group Catalogue.

3_ **ODM**, Optimum Detection Methods. There is a good discussion in the Book "Visual Astronomy of the Deep Sky. Roger N. Clark, Ph.D. Cambridge University Press & Sky Publishing Corporation © Roger N. Clark 1990 First published 1990

For a discussion about the Threshold Method visit <http://www.uv.es/jrtorres/visib.pdf>

4_ **LEDA** stands for Lyon Meudon Extragalactic Database. It has been the first Extragalactic Database. It was created in 1983 at Lyon Observatory. Since this time, the database has been continuously updated. The main idea is to collect raw measurements (coming directly from observations) and to archive them.



Elections for RCA Officers

At the November General Membership Meeting we will be electing the following RCA officers for 2011:

- President
- Vice President - Membership
- Vice President - Community Affairs
- Vice President - Programming (Communications)
- Vice President - Observing Treasurer Secretary



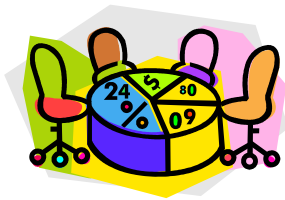
This notice serves as a request for any additional nominees for any of these positions. If you wish to be considered for one of these positions, please contact any member of the nominating committee. Candidates will be announced at the October general meeting. There will be opportunity to nominate others from the floor at that time. Final announcement of the candidates will be in the November newsletter. Elections will be held at the November meeting. Any newly elected officers will assume their roles on January 1. If you are interested in running for one of these positions, or would like to nominate another member, please contact one of the members of the Nominating Committee listed below (via RCA Forum personal message or Forum email link) prior to the beginning of the October general meeting.

Diana Fredlund

Greg Rohde

Scott Kindt

Joe Sonderleiter



Minutes of the Rose City Astronomers Board

August 1st 2011

Held at OMSI Classroom 2

Chair : Sameer Ruiwale
Secretary : Ken Hose for Duncan Kitchin

Board Members Present

David Nemo (Observing Site Director)
Sameer Ruiwale (President)
Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Dawn Willard (VP Community Affairs)
Scott Kindt (Newsletter Editor)
Larry Froberg (Sales Director)
Jan Keiski (Library Dir., OMSI & Sister Club Liaison)
Diana Fredlund (Media Director)
Mark Martin (VP Programming)
Ken Hose (VP Membership)
Matt Vartanian (VP Observing)

Call to Order

The meeting was called to order at 7:10pm by Sameer Ruiwale and, there being 11 board members present, the quorum requirement of 9 was declared to be met.

Approval of Agenda

The agenda was approved by unanimous consent.

Approval of Minutes

Moved: Approve minutes from the June 2011 board meeting. Moved: Sameer, Second: Diana. Motion passes with 10 yeas and 1 abstention.

Directors' Reports

Secretary's Report – Duncan Kitchin: Absent.
Treasurer's Report – Larry Godsey: [Nominal](#)
VP Programming – Mark Martin: Speakers/activities are scheduled out to March. Matt Vartanian will speak at the August general meeting.
VP Observing – Matt Vartanian: Good attendance at Trout Lake. We need to come up with a new observing site for Aug 27 since the White River site is closed for some construction activities. Matt will come up with something and update the calendar by the end of this week.

VP Community Affairs – Dawn Willard: There were 3 star parties last weekend: Mountain Dale, Evergreen Aviation Museum, and Champooeg Park. There are two star parties scheduled for this coming weekend. Astronomy day went well. There was solar viewing all day and the evening star party had 12 volunteer scopes.

VP Membership – Ken Hose: Last month, we had 58 renewals, and 3 new members. Total membership stands at 195 (fully paid up to 6/2012) with 373 names still on the roster until after the September purge. Total dues were \$1,492.

Alcor – Ken Hose: No new observing logs submitted.

New Member Advisor – Howard Knytych: Absent

Media Director – Diana Fredlund: New release will be out by the end of the week.

Sales – Larry Froberg: \$581 in merchandise sales, plus \$297 in t-shirts. We have currently approximately 30 book pre-orders at this point (*We Are Not Alone*).

Book Library – Jan Keiski: Nominal.

Telescope Library – Greg Rohde: Absent.

IDA – Dawn Nilson: Absent.

Magazine Subscriptions – Larry Godsey: Nominal.

Webmaster – Larry Godsey: Nominal.

Site Committee – David Nemo: David checked out a property lead in Centerville near Trout Lake. It turned out to be mostly sloped and not suitable for large gatherings.

Youth Director - Jean London: Not present.

Newsletter Editor – Scott Kindt: Nominal

SIGs – Scott Kindt: No activity.

OMSI – Jan Keiski: OMSI Star Parties: There will be one at Rooster Rock and one at Stub Stewart on August 12.

Sister Club update – Jan Keiski: GAMA is getting some good skies, and is holding monthly outings.

Old Business

Proposal for RCA / Clackamas Community College Haggart Observatory use – David Nemo / Sameer Ruiwale. There was another trip to Haggart last Friday for training and orientation. We have an agreement in-hand but the RCA should have a lawyer look it over. David is planning on another session in a few weeks.
RCA Calendar – No information yet on costs for the larger calendar. The fall-back is to use the same size as last

(Continued on page 11)

(Continued from page 10)

year.

Dark Sky Conf. Speaker – Sameer was to contact Dawn Nilson to see if it is possible to coordinate a Dark Sky Conference speaker with an RCA general meeting. Not done.

Telescope Award Donations – Greg Rohde was to come up with a proposal for procedures to make award donation decisions. Not done.

Tabled Items

Update on costs / procedures for shipping a telescope to GAMA in Argentina - Margaret Campbell-McCrea / Larry Godsey. We decided to remove this item from future agendas.

New Business

2012 RCA Star Party Schedule – Matt Vartanian. Matt will have a draft schedule for the next board meeting. We need the schedule for the RCA calendar. So far, we have the Spring Camp Hancock date set. There was a suggestion that we add a close-in star party in addition to a further out one where camping is required for those folks who would like to observe but don't care to camp. We need to contact the SIG leaders to get information for the calendar (not sure who has this AR).

AL Membership - We discussed the pros and cons of AL membership. We do get discounts on AL publications and a break on insurance, and we get The Reflector. But we only had about 5 AL awards last year. And the

annual dues of \$1,700 (based on membership) are substantial. There were no strong feelings either way and we do like the idea of supporting an organization that promotes amateur astronomy. There was a question about whether we could get a break on the dues if we received The Reflector in pdf format only. AR: Ken Hose to ask the AL.

2012 Election – We need a nominating committee consisting of 3 board members (non-VP) and 3 non-board members. The 3 board members will be Diana, Scott, and Greg (Greg was nominated *in absentia*; the others volunteered). We need to make an announcement at the August general meeting to recruit non-board members.

Vacancies – Youth Director. Jean London resigned. We need to have a discussion on the future of the program. Do we need to restructure the program? AR: Ken Hose to make an email list of members with children who may want to participate in future youth programs.

Vacancies – Sales. Larry Froberg is resigning at the end of the year and would like to find a replacement. He indicated he will continue if no replacement could be found.

Vacancies – IDA. The IDA position is not merely a figurehead—we require participation at board meetings. Dawn Nilson does not typically attend so should we press her to attend or should we look for a replacement?

Adjournment

There being no further business, the meeting was adjourned at 8:25.



Some GAMA's members. Left to right, Elio Delgado, Luis Sevilla, Carlos Gutierrez, Carlos Calvo (president), Hugo Dichiara, Leo Cavagnaro, Enrique Giovannini.

Celebration Dinner





Elias, Leo & Enrique

GAMA, our sister club in Mendoza Argentina, celebrated their 12th Anniversary on October 1, 2011!

They had the highest attendance at their Canota observing site! That is the primary close in observing site for the club. There were 30 observers in attendance, which is great for the group! Leo Cavagnaro reported clear skies and great observing temperatures as contributing factors.



OCTOBER 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3 7pm Board Meeting OMSI Classroom 2 7pm 	4	5	6	7 Noon Downtowners Luncheon Kell's	8 10am - 3pm Telescope Workshop
9	10 Astro Imaging SIG Beaverton Library	11 	12	13	14	15
16	17 7:30pm General Meeting OMSI Planetarium	18	19 7pm Cosmology SIG 	20	21	22
23	24	25	26 	27	28	29
30	31					

November 2011

Nov 04	Friday	Downtowners Luncheon	Kell's	Noon
Nov 07	Monday	Board Meeting	OMSI Classroom 2	7pm
Nov 12	Saturday	Telescope Workshop	Swan Island	10am-3pm
Nov 14	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
Nov 21	Monday	New Members Meeting	OMSI Planetarium	6:30pm
Nov 21	Monday	General Meeting	OMSI Auditorium	7:00pm
Nov 23	Wednesday	Cosmology SIG	Linus Pauling House	7pm

<http://www.rosecityastronomers.org>

Rose City Astronomers
Oregon Museum of Science and Industry
1945 SE Water Ave
Portland, OR 97214-3356

The Rosette Gazette

Volume 23, Issue 11

Newsletter of the Rose City Astronomers

November, 2011



Observing the Small White Dots

The Analysis of Starlight

By David Haworth

Astronomical spectroscopy provides a way to analyze the star's chemical composition, temperature and its radial velocity. Spectroscopy is the analysis of star light dispersed according to its wavelength. This light dispersion is called a spectrum and it is displayed as white streaks or color streaks in an image. A common example of a spectrum that most people have seen is a rainbow that is created by the Sun and the rain.

David's presentation starts with an overview of the basic types of spectrums. He will show you how to build a simple solar spectroscope that shows that the Sun's photosphere is composed of hydrogen, sodium and magnesium. A moderate resolution spectrum of the Moon and planets are analyzed next. Moving farther from Earth an introduction to spectral classification is covered with examples of standard spectral type stars taken with a simple grating filter. Also, the spectrum of stars is compared to a nebula spectrum. Finally an image like the one on this page will be analyzed showing unique objects such a very cool temperature



infrared star and the redshift spectrum of a Quasar that is 3.269 billion light years away.

David Haworth enjoys astronomy, astrophotography and processing images to bring out details that cannot be seen by visual observing. David started in astrophotography in 1996 and he has used a variety of cameras to image the sky. David

(Continued on page 2)

In This Issue:

- 1....General Meeting
- 2....Special Interest Groups
- 3....Club Officers
-Magazines
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- 4OMSI's Mesmerizing Pendulum
- 8....NASA Space Place
- 9...The Observers Corner
- 12...The Cubicle You Want To Work In
- 13...RCA Board Minutes
- 14...Elections
- 15...Calendars



RCA is a member of the Astronomical League.
<http://www.astroleague.org>

All are Welcome! Monday November 21st

New Members Meeting: 6:30 pm Location: OMSI Planetarium

General Meeting Begins: 7:30 pm Location: OMSI Auditorium

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Trout Lake Star Party photo above courtesy Michael Minnhaar

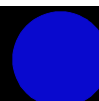
Moon photos below courtesy David Haworth

Full Moon
Nov 10

Last Quarter Moon
Nov 17

New Moon
Nov 24

First Quarter Moon
Dec 02



(Continued from page 1)

wrote "Afocal Photography with Digital Cameras" chapter in the second edition of "The Art and Science of CCD Astronomy" book and "Flat Field Calibration using an LCD Monitor" article in AstroPhoto Insight magazine. David's images have appeared on a magazine front cover, in magazine articles, a book front cover, in books, in catalogs, in videos, on posters, on music CD covers, on T-shirts, on wine bottles and on a variety of web sites. Recently, David has been using spectroscopes to analyze the light from celestial objects that range from the Sun to distant Quasars that are billions of light years from us. David's website is www.stargazing.net/david/



Pleiades M45 Stars Spectra
Images by David Haworth

Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, November 14th, 7pm
Location: TBA
TBA
TBA
Wilsonville
SIG Leader: Greg Marshall
Email: ai-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/astroimage.htm>

Science Special Interest Group

When: On Hold
Location: Technical Marine Service, Inc
6040 N. Cutter Circle on Swan Island
Portland
SIG Leader: Dan Gray
Email: sci-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/science.htm>

Downtowners Luncheon

When: Friday, December 2nd, Noon
Location: Kell's
112 SW Second Ave. Portland
SIG Leader: Margaret Campbell-McCrea
Email: downtown-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/downtowners.htm>

New Members Special Interest Group

When: Monday, November 21st, 6:30pm
Location: OMSI Planetarium
Topic: Celestial Cornucopia featuring fall highlights and Jupiter
SIG Leader: Howard Knytych
Email: newmembers@rosecityastronomers.org
http://www.rosecityastronomers.org/sigs/new_members.htm

Telescope Workshop

When: Saturday, November 12th, 10:00am - 3:00pm
Location: Technical Marine Service, Inc.
6040 N. Cutter Circle on Swan Island
Portland
SIG Leader: John DeLacy
Assistant: Don Peckham
Email: tw-sig@rosecityastronomers.org
<http://www.rosecityastronomers.org/sigs/tmw.htm>

Astrophysics / Cosmology SIG

When: Wednesday, November 23rd, 7pm
Topic: TBD
Presented by: "TBA"
Location: Linus Pauling House
SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm

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Youth Programs Director	Ada Hays	youth@rosecityastronomers.org
Sister Club Liaison	Jan Keiski	sisterclubs@rosecityastronomers.org

RCA MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is a reduced rate subscription to Sky & Telescope and Astronomy magazines. The RCA member rate for Sky & Telescope Magazine is \$32.95 for one year or \$65.90 for two years. The RCA member rate for Astronomy magazine is \$34 for one year or \$60 for two years. For more information go to the RCA web site index and click on the link for magazines. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

<http://www.rosecityastronomers.org/magazines/>
 Larry Godsey <magazines@rosecityastronomers.org>



RCA LIBRARY

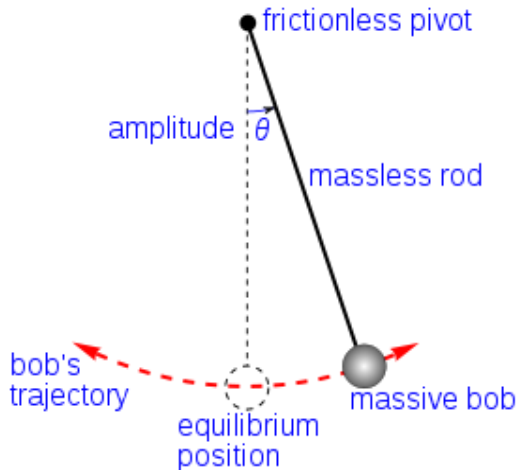
The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CDs and videos. These items can be borrowed by members through checkout at the general meetings for a period of one month with renewals available by phone or e-mail to the club library director. The RCA library is constantly growing through many donations and the purchase of new materials. A listing of library materials (PDF format) can be found at the library web page.

<http://www.rosecityastronomers.org/library.htm>
 Jan Keiski <library@rosecityastronomers.org>

OMSI's Mesmerizing Pendulum

by Robert McGown

The Oregon Museum of Science and Industry's (OMSI) pendulum mesmerized visitors at the museum for many years. It was incredible, something as simple as a weight on a cable that had a steady timed period as it swung back and forth could be so captivating. Gravity would transfer the kinetic energy (the energy of motion) to potential energy (the energy of position). No wonder, there has been so much scientific inquiry over the mechanics of the pendulum. In a way, the pendulum itself was like a hypnotist swinging a pocket watch, putting a patient into a trance.



The Theoretical Gravity Pendulum Has No Frictional Air Resistance

hams and a few friends from the Antique Telescope Society. The kids loved the science museum and the pendulum. If they could get near to the pendulum, they would swing it or grab it. The kids were captivated by the pendulum like a cat stalking its prey. One common denominator of all science museums' exhibits was the fun and excitement; however, the kids sometimes unintentionally damaged the exhibits.

The variety of pendulums at the old OMSI was amazing!

There was the large pendulum that drew curves in the sand. There also was a little pendulum that you would hook an ink pen to and it would make spiral patterns as it oscillated around its center of gravity. It is called a spiral graph. You could draw all kinds of patterns known as fractals or strange attractors as they are referred to in Chaos Theory.

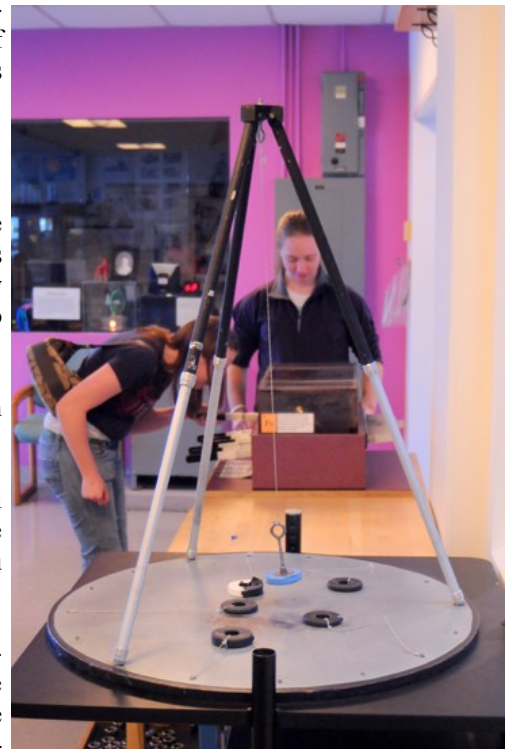
The giant pendulum knocked over little dominoes or tiny bowling pins as the earth rotated under it. The pulse of the pendulum seemed steady as a heart beat.

At Lewis and Clark College in Portland, there is a large pendulum in the stair well going up to the Jim Karle Observatory used for demonstration purposes by the physics professors. As you descend the spiral stair case from the observatory, you get the full effect of the pendulum swinging back and forth.

A friend of mine, Bob Cogan, and I were discussing electricity, the inventor Nicola Tesla and the pendulum. Bob retired from Tektronix and told me about the OMSI pendulum magnetic ring coil that was designed and built at Tektronix. The magnetic coil boosted the pendulum action. The coil was placed in a circle directly under the equilibrium position and at the center point. The magnetic coil tugged on the pendulum plumb bob as it swung toward the equilibrium position.

As a child, I had a yo-yo and have been interested in the pendulum ever since. I would attempt the difficult 'rock the cradle' where the yo-yo would swing back until it was jerked up ward and climbed back up the string. The spinning yo-yo is the pendulum mass with gravity swinging it back and forth. It would oscillate back and forth through an equilibrium position with nearly constant amplitude except for the slight movement of my hand. A finger acts as the frictionless pivot that the string of the yo-yo pendulum was connected to. One would be mesmerized watching the yo-yo swing back and forth. There were all kinds of pendulums that I watched as a child at the former OMSI located next to the Oregon Zoo and Planetarium.

I remember a pendulum during a tour of the Griffith Park observatory in the eastern Santa Monica mountain range on Mt. Hollywood. I wasn't sure if it had a magnetic boosting coil or a mechanism that seemed to push the pendulum along like magic. As you walked through the front door it was boldly displayed for visitors to experience. The pendulum was conceived to display the rotation of the Earth. The science museum was impressive with its statues of Newton, Galileo, and Kepler out front where the movie *Rebel Without A Cause* was filmed. Inside was the Chesley Bonestell art that Carl Sagan liked so much. There was a 12 inch Zeiss refractor telescope on the same floor as the pendulum with which we viewed Jupiter with Peter Abra-



Present Pendulum Display With Magnets In OMSI's Turbine Hall

At the center point, there was a switch activated by the plumb bob that turned the coil off as the pendulum swung past. When the pendulum got to its high point of the swing, the coil was activated and the pendulum was ready to get a little tug as it again approached the coil. It would swing past and shut off the switch that controlled the coil and return to the peak of its swing. This boost by the magnetic coil would help the pendulum overcome air drag and mechanical friction. That way, the pendulum would never slow down. Were all big pendulums like this?

The largest pendulum in the world is at the Oregon Convention Center. The pendulum system was designed as a work of art. Supporting the 900 pound pendulum is a 70 foot cable! The pendulum bob is three feet in diameter and is suspended from one of the geodesic glass towers.

Suspended in a 40 ft halo that surrounds the pendulum are gilded rays and knock down indicators depicting the Earth's position beneath the pendulum. On the floor underneath the pendulum is a mock up of an imaginary solar system inlaid with semi precious stones from the United States and India. The Convention Center's pendulum also has an electromagnet to keep it in motion. It is located at the top of the supporting cable.



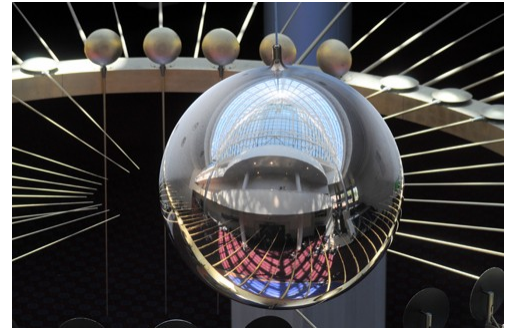
Spiral Graph Image Depicting A Face On Spiral Galaxy Image By Usuff Omar (used with permission)



Oregon Convention Center Pendulum With Mock-Up Mosaic Solar System



Pendulum Halo Showing
Timing Indicators



Reflections Of The Science Fiction
Looking Pendulum Sphere



Pendulum Magnetic Booster Coil

In geophysics, pendulums were used in gravimeters to measure the differences in the acceleration of gravity as well as a standard of length using the gravitational constant. Early pendulum instruments were used to measure the mass of a mountain in Scotland. By using an equation a standard of length could be derived. Pendulums are used to regulate Pendulum Clocks, like the classic grandfather clock. They were also used in early scientific instruments such as seismometers and accelerometers.

Jean Foucault, a physicist, in 1851 discovered that the swing plane of a pendulum appears to rotate, however it is the Earth that rotates under it. Depending upon the latitude the pendulum will appear to rotate a full 360 degrees. A pendulum at the North Pole makes a full rotation, although there is no rotation at the equator. In Portland, Oregon, the pendulum takes 33.5 hours to make a complete rotation.

OMSI's Jim Todd conversed with me about the pendulum at the former OMSI near the Oregon Zoo. He said it was taken out in the early 1990's and used for the signage for the exterior of the museum when the museum was remodeled and the pendulum room was floored over. He didn't remember what happened to the magnetic booster ring. The pendulum was a central entertaining show piece of the science museum for many years.



Jean Foucault
(image from Granger Collection)

We begin with the formula for the period of the pendulum from high school physics. The gravitational constant can be derived by using the length of the pendulum as in the following classic formula:

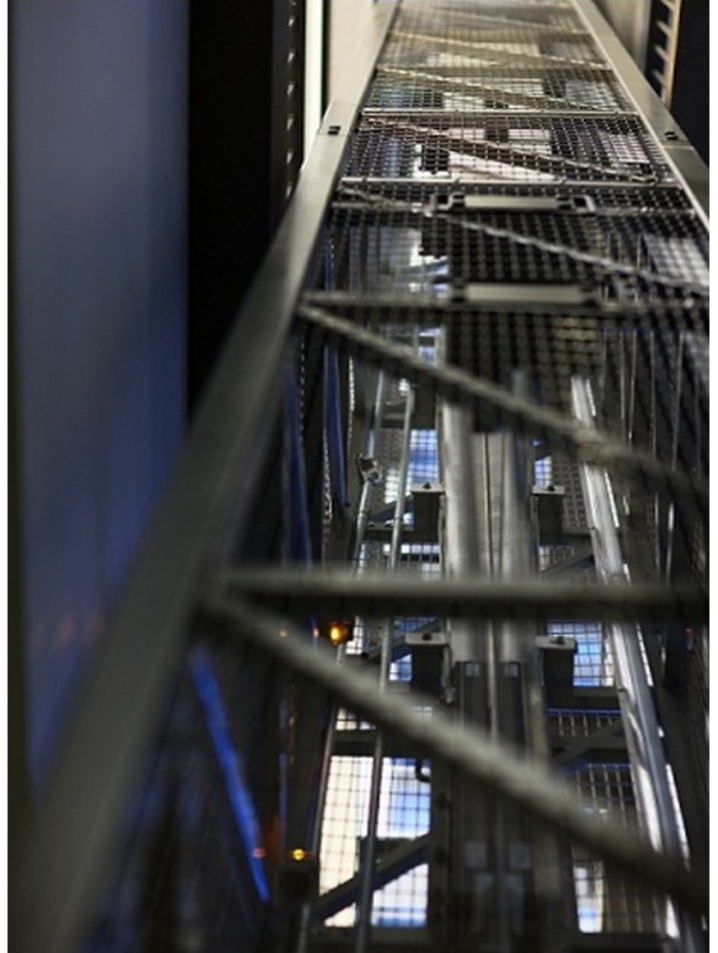
$$g = 4 \pi^2 L / T^2.$$

Solving for T we get: $T = 2\pi \sqrt{L/g}$

L=length of pendulum, T = time of swing,
g = gravitational constant (acceleration of gravity)

The time period of the pendulum can be derived by manipulating the equation. At the maximum high point, during the swing from side to side, there is maximum potential energy. As the pendulum swings down there is the transfer of potential energy to kinetic energy. At the maximum lowest point, we get the kinetic energy of the system and the maximum horizontal velocity.

I had the opportunity to participate with Dr. Mark Weislogel and his students in zero g microgravity experiments at Portland State University. The PSU engineering students have built over twenty experiments that have flown into near space, on the Space Shuttle, with 11 experiments on the International Space Station! They have also flown 13 high altitude weather balloons with command and payload modules to a height of over 20 miles, 120,000 feet above the Earth setting high altitude records. Over the last year, a five story drop tower was built in the engineering department partly funded by NASA. The specially designed Dryden Drop Tower gives high speed photographs of slightly over two seconds of zero g. Dr. Weislogel has supervised over 300 experiments with the microgravity facility. Two of the ten experiments that we worked on were the pendulum and the gyroscope in zero g environments. Many times the results of the microgravity experiments are counterintuitive.



Dryden Drop Tower
Is In The Right Side
of The PSU Maseeh
Engineering Building

In microgravity, the pendulum depending upon where it was in its swing, would not swing back and forth, but rather swing a 360 degree circle. We all guessed what the gyroscope would do and to see it in action was amazing. The spinning disc of the gyroscope seemed to warp like a Mobius strip in the videos. It would launch it self at what ever angle it was at and then didn't continue to precess. Instead, the gyroscope floated in the air above its pivot point and the outer frame work counter rotated due to friction and inertia. Some of the other drop tests were static charge experiments. Dr. Weislogel and his team of undergrad and grad student engineers have specialized in capillary flow experiments like on the International Space Station. Four patents have been given to the team and they also invented the astronauts coffee cup!

In 1602, Galileo studied the regular motion of pendulums which were the most reliable method of timekeeping. Galileo observed that the period of the pendulum is independent of the amplitude. For almost 400 years, the pendulum was used to regulate time until more accurate technologies were developed such as the atomic clock. Sir Isaac Newton used Galileo's observations to create the laws of universal gravitation, which explains the motions of a pendulum. Although Einstein's equations have superseded Newton's laws of universal gravitation, Newton's laws are still widely used for calculating orbits.

(Continued from page 7)

Notes:

Many thanks to the Oregon Convention Center and OMSI for their assistance.
Pendulum photographs courtesy Bob Cogan.

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December 6, 1945: Percy Spencer invented the microwave oven.

Another opportunity to check out the electro-magnetic spectrum. See where microwaves fit in as you play “Photon Pile-up” at <http://spaceplace.nasa.gov/photon-pileup>.

December 11, 1719: The aurora borealis was first recorded in New England.

Find out about space weather, the cause of this beautiful light show, at <http://spaceplace.nasa.gov/spaceweather>.

Special Days

Month of November: Aviation History Month

Here’s a great opportunity to find out from Space Place’s Dr. Marc how airplanes ever got off the ground in the first place. <http://spaceplace.nasa.gov/dr-marc-technology>

November 5: Gunpowder Day

An explosive subject, but historically and scientifically important, nonetheless. See how you can use it to explain how orbits work at <http://spaceplace.nasa.gov/how-orbits-work>.

November 8, 1895: X-rays discovered by W. C. Roentgen.

Find out where X-rays fit into the electromagnetic spectrum by taking a stroll through the “Land of the Magic Windows,” <http://spaceplace.nasa.gov/magic-windows>.

November 27, 1571: Birthday of Johannes Kepler

Kepler is considered the founder of modern astronomy. Find out why from Dr. Marc at <http://tinyurl.com/dr-marc-kepler>.

December 14: Geminids Meteor Shower

Moonlight makes viewing not so great this year. But you can still learn about meteor showers and prepare for the next good, Moonless meteor shower, the Lyrids on April 21 and 22, 2012. <http://spaceplace.nasa.gov/meteor-shower>

Courtesy of [NASA’s Space Place](http://spaceplace.nasa.gov)



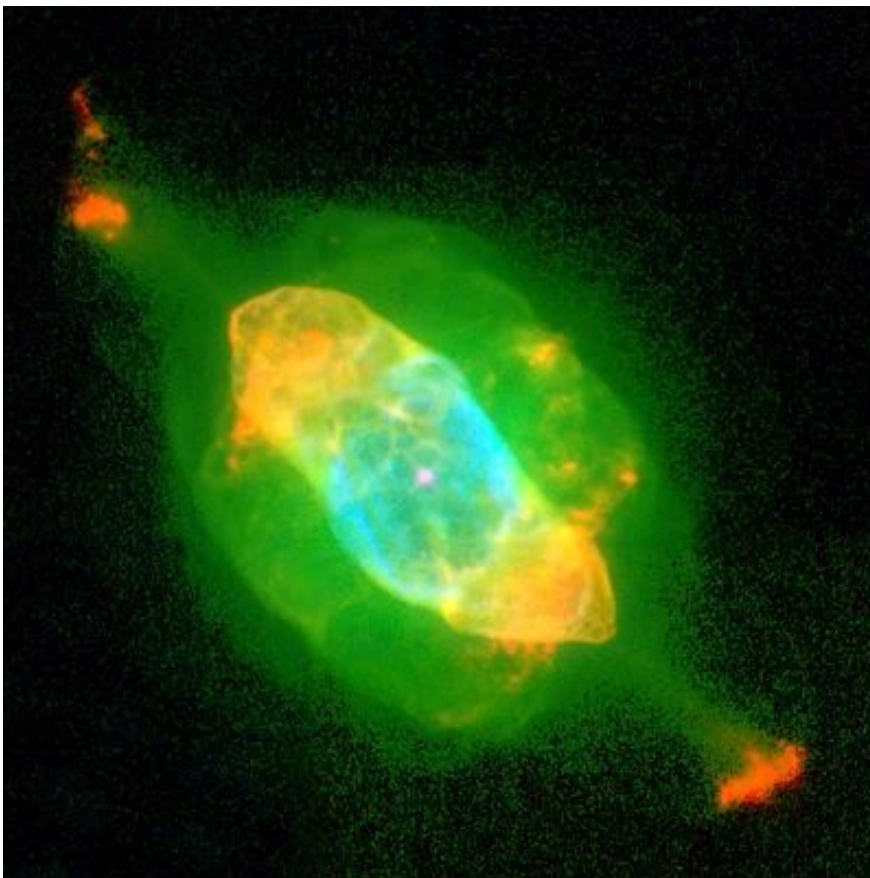


NGC 7009, Herschel's "Curious Nebula"

The Saturn Nebula is not only one of the more interesting planetary nebulae to observe but it also has a wonderfully evocative name. Who wouldn't want to have a look at something called the "Saturn Nebula"?

Nonetheless, it's an under-observed and under-appreciated object, which is too bad because it's both a great sight visually and historically interesting.

At magnitude 8.3 and 1.2 arc minutes in diameter, it's brighter but a little smaller than M57. It also has a much easier to see central star (magnitude 12.7) than M57, along with a visible structure unique among the brighter planetaries – the ansae that give rise to its name. As usual, the HST image here shows way more than you can see through your own scope, but in this case you may be surprised that you can see the overall shape quite well.



With that in mind, there are three compelling reasons to observe the Saturn Nebula, two of which you probably don't know:

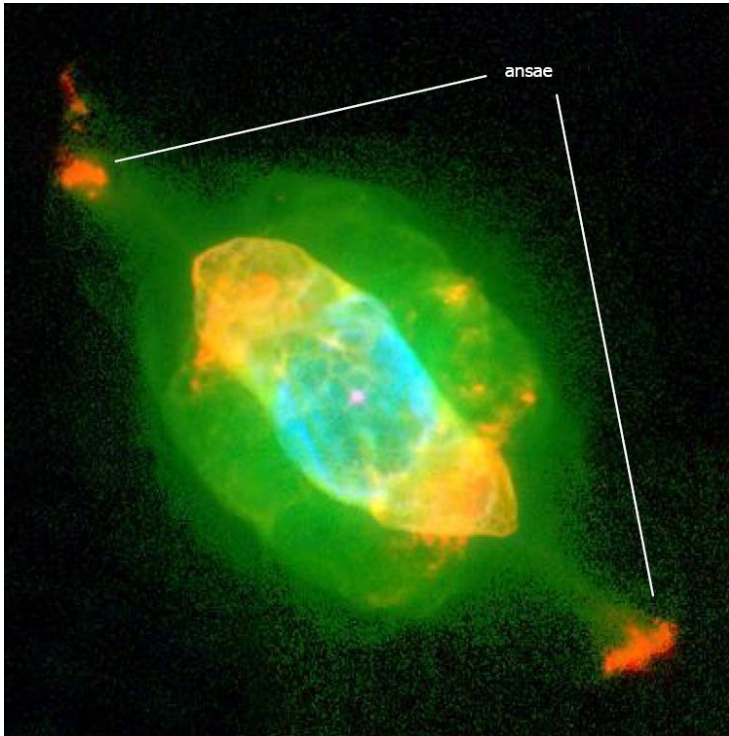
1. The term "planetary nebula" was coined as a result of its discovery.
 2. It was the first deep sky object discovered with a reflecting telescope.
- Its overall shape resembles Saturn when its rings are presented nearly edge on.

A short history

The Saturn Nebula was accidentally discovered on September 7, 1782 by William Herschel using his home-made 12 inch diameter, 20 foot long reflector. This was a few years before he began his systematic sweeps of the sky with his 18.7 inch scope, and he essentially stumbled across it when he was just poking around southwestern Aquarius.

Unfortunately, his 12 inch did not show the remarkable ansae coming from each end that gives NGC 7009

(Continued on page 10)



its unique appearance, so it was left to Lord Rosse to coin the name “Saturn Nebula” when he clearly saw its distinctive shape with his 72 inch reflector in 1849.

Even though Herschel didn’t see the ansae when he discovered the Saturn Nebula he still didn’t quite know what to make of this object and wrote in his observing journal:

“A curious Nebula or what else to call it I do not know. It is of a shape somewhat oval, nearly circular. The brightness in all powers does not differ so much as if it were of a planetary nature, but seems to be of the starry kind.”

It was from this notation that the term “planetary nebula” was born, and clearly Herschel used the word planetary to mean “disk-like”, not that these objects were related to planets. Even though M27 and M57 were already known they weren’t recognized as planetary nebulae (PN) for approxi-

mately another 80 years, so any time you hear or read the term “planetary nebula” remember that it was first applied to the Saturn Nebula by William Herschel.

In addition, because Herschel used his 12 inch reflector to discover the Saturn Nebula, and all deep sky objects discovered before him were made with refractors, this is the first non-stellar object to be found with a reflecting telescope. How cool is that?

Interestingly, Herschel didn’t directly compare the Saturn Nebula to Uranus, which he discovered in 1781. He used the term “planetary nebula” to describe a class of objects that showed round or oval discs with a uniform brightness and clearly defined perimeter - which is a pretty good description of the telescopic appearance of Uranus. Truly, it’s difficult to imagine that the discoverer of Uranus didn’t have it in mind when he coined the term.

Herschel had no way to determine the actual composition of the Saturn Nebula so he really didn’t know what he’d found. Spectroscopy of planetary nebulae wouldn’t come until 1864 with William Huggins groundbreaking work, but that’s another story. Nonetheless, in 1785 Herschel did speculate that planetary nebula could *“be looked upon as very aged globular clusters drawing on towards a period of change, or dissolution.”* He changed his mind in 1790 after observing NGC 1514, but that’s yet another story.

Oddly, in none of his planetary nebula discoveries, including the Saturn Nebula, did Herschel note their sometimes vivid blue-green color. Almost as strange, he noted the blue hue of Uranus only once and was startled that it looked blue that one time. His son John Herschel was the first to comment on the color of some of the brighter planetary nebulae.

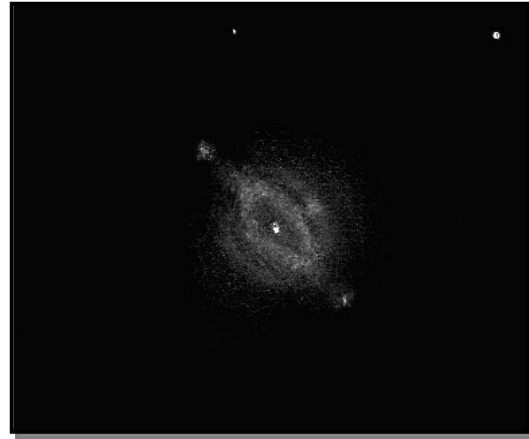
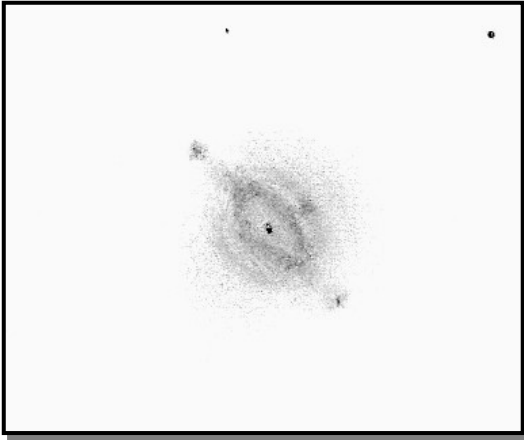
Nonetheless, the blue tint of the Saturn Nebula is easy to see, especially at low powers. The color fades with increasing magnification but if the seeing is steady you’re nicely compensated with fascinating glimpses of internal detail.

(Continued on page 11)

Observing notes

I've had a few excellent views of NGC 7009, with the most recent coming on September 27, 2011 at Steens Mountain in southeastern Oregon. Although the sky was far from the normal, astonishingly dark and transparent condition the Steens is famous for, the seeing was steady and allowed a sharp view with powers up to 816x with my 28 inch f/4 Newtonian. The Sky Quality Meter (SQM) gave a reading of "only" 21.45 during this observation, which is pretty good considering the entire sky was glowing from a solar storm and aurora were constantly forming along the northern horizon. Dark skies at Steens Mountain are normally in the 21.8 to 22.0 range.

The ansae were evident at all powers but showed detail at magnifications over 250x. Within the end of each ansae I could detect a small, star like brightening at times, which came and went with the seeing. The connecting arms were rather faint and at times I wondered if I was really seeing them fully connect to the brightening at each end.



The inner ring is the brightest part of the Saturn Nebula, and is irregularly elongated and encased by a fainter, outer ring that looks more like parenthesis than a full ring. I noticed a small knot of material in the northern side of the outer ring when using a broad band filter, but it didn't pop out with either a NPB or OIII filter.

I also noticed a faint, circular outer halo that gradually faded with no definite boundary as it gave way to the blackness of space. The overall shape reminds me of a toy gyroscope – I find the similarity quite striking and think the name "Gyroscope Nebula" would be a more descriptive name than the Saturn Nebula. The central star is easily visible when the seeing is steady but it intriguingly disappears in unsteady conditions, inviting prolonged observation.

Because the blue-green color of the bright central areas are most evident at low powers, you may find it easier to locate the Saturn Nebula by its color rather than its shape. But however you find it, I hope you'll be rewarded with a fascinating and memorable view of Herschel's Curious Nebula.

The Gray Cubicle You Want to Work In

By Dr. Tony Phillips

It's another day at the office.

You're sitting in a gray cubicle, tap-tap-tapping away on your keyboard, when suddenly your neighbor lets out a whoop of delight.

Over the top of the carpeted divider you see a star exploding on the computer screen. An unauthorized video game? No, this explosion is real. A massive star just went supernova in the Whirlpool Galaxy, and the first images from Hubble are popping up on your office-mate's screen.

It's another day at the office ... *at NASA.*

Just down the hall, another office-mate is analyzing global temperature trends. On the floor below, a team of engineers gathers to decode signals from a spaceship that entered "safe mode" when it was hit by a solar flare. And three floors above, a financial analyst snaps her pencil-tip as she tries to figure out how to afford *just one more* sensor for a new robotic spacecraft.

These are just a few of the things going on every day at NASA headquarters in Washington DC and more than a dozen other NASA centers scattered around the country.

The variety of NASA research and, more-

over, the variety of NASA people required to carry it out often comes as a surprise. Consider the following:

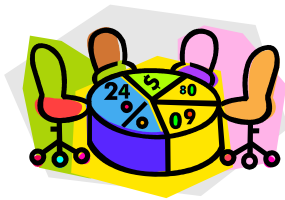
NASA's Science Mission Directorate (SMD) supports research in four main areas: Earth Science, Heliophysics, Astrophysics, and Planetary Science. Read that list one more time. It includes everything in the cosmos from the ground beneath our feet to the Sun in the sky to the most distant galaxies at the edge of the Universe. Walking among the cubicles in NASA's science offices, you are likely to meet people working on climate change, extraterrestrial life, Earth-threatening asteroids, black holes or a hundred other things guaranteed to give a curious-minded person goose bumps. Truly, no other government agency has a bigger job description.

And it's not just scientists doing the work. NASA needs engineers to design its observatories and build its spacecraft, mathematicians to analyze orbits and decipher signals, and financial wizards to manage the accounts and figure out how to pay for everything NASA dreamers want to do. Even writers and artists have a place in the NASA scheme of things. Someone has to explain it all to the general public.

Clearly, some cubicles are more interesting than others. For more information about the Science Mission Directorate, visit science.nasa.gov. And for another way to reach the Space Place, go to <http://science.nasa.gov/kids>.

Some of the employees of NASA's Science Mission Directorate may work in gray cubicles, but their jobs are anything but dull. They get to study Earth, the Sun, the Solar System, and the Universe!





Minutes of the Rose City Astronomers Board

September 12th 2011

Held at OMSI Classroom 1

Chair : David Nemo

Secretary : Duncan Kitchin

Board Members Present

Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Duncan Kitchin (Secretary)
Diana Fredlund (Media Director)
Jan Keiski (Library Director, OMSI & Sister Club Liaison)
Greg Rohde (Telescope Library)
David Nemo (Observing Site Director)
Scott Kindt (Newsletter Editor)
Mark Martin (VP Programming)

Call to Order

The meeting was called to order at 7pm by David Nemo and, there being 8 of board members present, the quorum requirement of 9 was declared to be not met.

Directors' Reports

Secretary's Report – Duncan Kitchin: **Quorum (9)** not met with 8 voting members present. Since we do not have a quorum, we cannot approve minutes from August. Corrections will be made as suggested by Peter Abrahams and an update provided prior to next month's meeting.

Treasurer's Report – Larry Godsey: Report provided by Larry Godsey at the meeting, and also available on the web. Currently slightly behind where we were this time last year. Mark Martin has some additional receipts which will be provided to Larry.

VP Programming – Mark Martin: Mark is organizing an observing session with the September speaker (Dirk Schultze-Makuch) at Stub Stewart on the Sunday prior to the meeting. Abstracts, Bios and Titles have been made available for September, October & November. Will be organizing a book event for January's speaker (Rod Mollise). The book is entitled "Choosing and Using a New CAT" and is part of the Patrick Moore practical astronomy series. We have also ordered another 10 copies of the "We Are Not Alone" book for this month's meeting.

VP Observing – Matt Vartanian: Not present. A draft of next year's observing schedule is available on the website. Larry Godsey has filled in details of the OMSI star parties and some other events.

VP Community Affairs – Dawn Willard: Not present

VP Membership – Ken Hose: Not present, but a report was submitted by Ken Hose. This month we had 8 new members join and we had 31 renewals. Total dues collected was \$965. Total membership stands at 233 member-families (dues paid through June 2012). The membership report (attached) has 385 member-families with 152 renewals outstanding. The non-renewals will be given until the next general meeting in September to renew before they are dropped from the list.

About 50% of the membership transactions were via PayPal. The convenience of PayPal may keep the membership numbers up.

Alcor – Ken Hose: Not present

New Member Advisor – Howard Knytych: Not present, but report provided: Howard intends to put together a new member's meeting for next Monday in the planetarium entitled "Fall Observing Highlights".

Media Director – Diana Fredlund: News release is out, including details as available on the website.

Sales – Larry Froberg: Not present, but report provided:

1. August Sales Notes:
 - a. Total August sales are \$500.00. This includes \$26.00 for a book "sold" to the RCA Library.
 - b. Total August deposit is \$475.00.
 - c. After figuring in the book sale to the library, our sales discrepancy for the month is \$1.00
2. I ordered and received 10 additional "We Are Not Alone" books. The publisher has given us the same discount level and I will sell them at the sales table for \$13.00.
3. I went to Anders Printing and arranged to get 4 separate estimates. I don't have the quotes in hand yet, but I will try to get them tomorrow morning before leaving for Seattle and will email them to you if I get them. I got the idea to also sell the calendars through the OMSI science store and have spoken to Jim Todd about it. He is fairly enthused about it. Here is what I envision. We would sell 125 calendars ourselves and also sell 125 calendars to the OMSI store at our cost. They could sell them for whatever price they choose and keep the profits. The advantage to us would be a lower per unit cost, plus free advertising for the RCA. I think the advertising would be a significant benefit. There have been many times in the past when our club meets while there is still an OMSI function going on. I have had many people stop by my sales table and ask what it's all about and were surprised to learn there was a local astronomy club. Finally, here are the bids I requested:
 - a. 125 calendars exactly the same as last year but of course with new pictures
 - b. 250 calendars the same as last year
 - c. 125 calendars which will be approximately 1.5" longer and wider
 - d. 250 calendars 1.5" longer and wider.

Book Library – Jan Keiski: Library is getting a new rolling cart for oversized materials courtesy of Chris Steinkamp. Have

(Continued on page 14)

(Continued from page 13)

many new book donations.

Telescope Library – Greg Rohde: Two donations: Celestron 8” Starbright SCT, an Orion SkyView Pro 120mm refractor with GEM, a total of 10 eyepieces, 4 filters, lighted reticle, observing table, illuminated reticle and two cases. Greg has also purchased 4 2” eyepieces, 1 pair of 20x80 binoculars, UHC and OIII 2” filters and a tripod for the outreach solar scope.

IDA – Dawn Nilson: Not present.

Magazine Subscriptions – Larry Godsey: Nominal

Webmaster – Larry Godsey: New section has been added for speakers. Mark Martin is requesting pdf copies of presentations to put on the website.

Site Committee – David Nemo: Several more properties are available in the Goldendale area.

Youth Director – Position Vacant

Newsletter Editor – Scott Kindt: Currently working on this month’s edition

SIGs – Scott Kindt: Nominal

OMSI – Jan Keiski: Jim is starting work on reservations calendar for 2012. There is an OMSI star party for this Saturday.

Sister Club update – Jan Keiski: the Southern hemisphere observing season is just starting.

Old Business

Proposal for RCA / Clackamas Comm. Coll Haggart

Observatory use – David Nemo / Sameer Ruiwale. No additional updates. David will be corresponding with volunteers. Memorandum of understanding is under review.

Update on Calendar printing costs for larger sized calendar / different printers – Larry Froberg. Report provided earlier. Given the time constraints, the members present decided to proceed on the basis that we will use the same calendar size as last year and provide guidance to the imaging SIG to that effect. Duncan to make an announcement.

Contact Dawn Nilson to ask about the proposed dark sky conference in conjunction with a speaker for RCA – Sameer. No update.

Create guidelines for possible telescope award donations to local schools or other organizations – Greg Rohde. No update.

Director elections: We have a volunteer for the nominating committee. Requests for candidates announcement will be made in the newsletter and at the September meeting.

Candidates will be announced in the October newsletter and at the general meeting, and elections will be in November.

Tabled Business

Update on costs / procedures for shipping a telescope to GAMA in Argentina - Margaret Campbell-McCrea / Larry Godsey. No updates.

New Business

Review draft 2012 RCA Star Party Schedule – Matt Vartanian. Draft still in progress.

Adjournment

There being no further business, the meeting was adjourned at 7:55pm

Elections for RCA Officers

At the November General Membership Meeting we will be electing the following RCA officers for 2011:

Sameer Ruiwale - President
Ken Hose - Vice President - Membership
Dawn Willard - Vice President - Community Affairs
Mark Martin - Vice President - Programming (Communications)
Larry Godsey - Treasurer
Duncan Kitchin - Secretary
Open - Vice President - Observing

The position of VP - Observing is currently open. The duties of this position are as follows:

- Main Focus – Star Parties Director - Develops annual star party schedule.
- Researches new star party sites.
- Develops and coordinates special committees as appropriate to organize special star party activities which RCA hosts (such as a regional meeting, etc., coupled with a star party).
- Serves as team leader for Telescope Librarian, OSP Liaison, Camp Hancock Liaison and recruits new appointees in the event of a vacancy.







This notice serves as a request for any additional nominees for any of these positions. If you wish to be considered for one of these positions, please contact any member of the board prior to the elections at the November general meeting.

These candidates were announced at the October general meeting. All these officers have indicated their willingness to continue to serve in their current capacities.

Elections will be held at the November meeting. There will be opportunity to nominate others from the floor at that time. Any newly elected officers will assume their roles on January 1.



NOVEMBER 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2 	3	4 Noon Downtowners Luncheon Kell's	5
6	7 7pm Board Meeting OMSI Classroom 2	8	9	10 	11	12 10am - 3pm Telescope Workshop
13	14 7 pm Astro Imaging SIG	15	16	17 	18	19
20	21 7:30pm General Meeting OMSI Planetarium	22	23 7pm Cosmology SIG	24 	25	26
27	28	29	30			

December 2011

Dec 02	Friday	Downtowners Luncheon	Kell's	Noon
Dec 05	Monday	Board Meeting	OMSI Classroom 2	7pm
Dec 10	Saturday	Total Lunar Eclipse	Total Lunar Eclipse 3:30am until moonset at 8:33am	3:30am
Dec 10	Saturday	Telescope Workshop	Swan Island	10am-3pm
Dec 12	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
Dec 19	Monday	Annual Potluck	OMSI Auditorium	6:30pm
Dec 21	Wednesday	Cosmology SIG	Does not meet this month	

<http://www.rosecityastronomers.org>

Rose City Astronomers
Oregon Museum of Science and Industry
1945 SE Water Ave
Portland, OR 97214-3356

The Rosette Gazette

Volume 24, Issue 12

Newsletter of the Rose City Astronomers

December, 2011



RCA MONDAY DECEMBER 19

ANNUAL POTLUCK DINNER & SWAP MEET

For December we have our Annual Potluck Dinner & Swap Meet

If your last name starts with Please bring a

A through E Dessert

F through K Side Dish

L through Z Main Dish

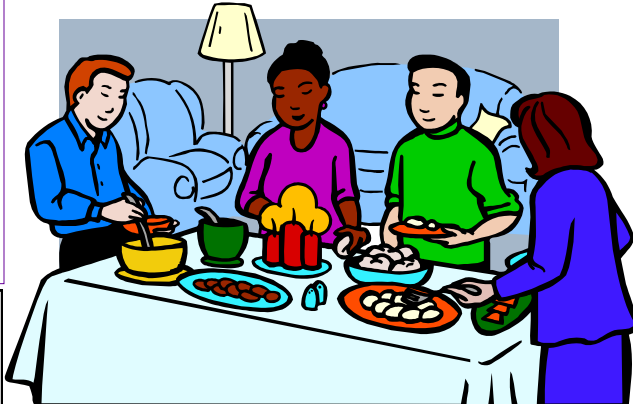
Activities begin at 6:30 pm. Plates, silverware, and beverages/ice will be supplied by the club. Just bring your dish along with a serving utensil and enjoy the holiday spirit with other RCA members.

The Holiday Social is a great event to pick up some excellent holiday deals! Save time to shop at the RCA Sales Table for your favorite astronomy gifts.

In addition, the Swap Meet will be back by popular demand and there will be ample empty tables around the lobby for everyone who is interested in displaying items for the Swap Meet.

In This Issue:

- 1....General Meeting
- 2....Special Interest Groups
-Junior Astronomers
- 3....Club Officers
-Magazines
-RCA Library
- 4....The Observers Corner
- 7....The Strange Case of 55 Cancri e
- 8....Telescope Sale
- 9....RCA Board Minutes
- 10...RCA Elections
-RCA Calendar
- 11...Calendars



All are Welcome! Monday December 19th

Potluck and Swap Meet Begins: 6:30 pm

Location: OMSI Auditorium



RCA is a member of the Astronomical League.
<http://www.astroleague.org>

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 Trout Lake Star Party photo above courtesy Michael Minnhaar
 Moon photos below courtesy David Haworth

Full Moon
Dec 10

Last Quarter Moon
Dec 17

New Moon
Dec 24

First Quarter Moon
Dec 31



Junior Astronomer Meeting

We have a new Youth Director for the Rose City Astronomers. Please give Ada a warm welcome when you see her. The following is a notice for the next Junior Astronomer Meeting:

All Ages Welcome

Monday, January 16th @ 6:30pm OMSI Classroom 1 (just down the hall from the Auditorium) This is just prior to the general meeting.



We'll be looking for junior officer candidates and anyone who is interested in having some fun!

For the first meeting we'll be discussing what we want to do, so please bring your ideas and questions!

Looking forward to meeting you all.

Ada Hays

youth@rosecityastronomers.org



PS (There will be cookies!)



It was a strange and (solar) stormy night . . .

It's always a good idea to maintain a healthy respect for the Sun, especially if you are in charge of operating any satellites, which can be badly damaged by high-energy charged particles from solar storms. Thankfully, many satellites can now be put into a temporary "safe" mode when necessary. However, operators must know when to flip the "safety" switch. The GOES satellites are in geostationary orbit high above most other satellites. Along with keeping an eye on Earth's weather, the GOES also keep an eye on the Sun's antics and give warning when bad space weather threatens other satellites. "Shields Up!" is a new game on the SciJinks website, in which the player's job is to keep three separate satellites safe from random blasts of damaging rays and particles from the Sun, while still keeping the satellites operating as much of the time as possible. Read the story of a super solar storm in 1859, and play "Shields Up!" at <http://scijinks.gov/shields-up>.

Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, December 12th, 7pm
Location: Beaverton Public Library
Conference Room
12375 SW 5th St
Beaverton

SIG Leader: Greg Marshall

Email: ai-sig@rosecityastronomers.org

<http://www.rosecityastronomers.org/sigs/astroimage.htm>

Junior Astronomers

When: Monday, January 16th, 6:30pm
Location: OMSI Classroom 1
Meets prior to and during the general meeting
Topic: First meeting

Leader: Ada Hays

Email: youth@rosecityastronomers.org

<http://www.rosecityastronomers.org/sigs/science.htm>

Downtowners Luncheon

When: Friday, January 6th, Noon
Location: Kell's
112 SW Second Ave. Portland

SIG Leader: Margaret Campbell-McCrea

Email: downtown-sig@rosecityastronomers.org

<http://www.rosecityastronomers.org/sigs/downtowners.htm>

New Members Special Interest Group

When: Monday, January 16th, 6:30pm
Location: OMSI Planetarium
Topic: TBD

SIG Leader: Howard Knytych

Email: newmembers@rosecityastronomers.org

http://www.rosecityastronomers.org/sigs/new_members.htm

Telescope Workshop

When: Saturday, December 10th, 10:00am - 3:00pm
Location: Technical Marine Service, Inc.
6040 N. Cutter Circle on Swan Island
Portland

SIG Leader: John DeLacy

Assistant: Don Peckham

Email: tw-sig@rosecityastronomers.org

<http://www.rosecityastronomers.org/sigs/tmw.htm>

Astrophysics / Cosmology SIG

When: Wednesday, February 22nd, 7pm
Topic: No meetings in December or January

Presented by: "TBA"

Location: Linus Pauling House

SIG Leader: Lamont Brock

Email: cosmology-sig@rosecityastronomers.org

www.rosecityastronomers.org/sigs/cosmology.htm

CLUB OFFICERS

Office	Name	Email
President	Sameer Ruiwale	president@rosecityastronomers.org
Past President	Carol Huston	pastprez@rosecityastronomers.org
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SIG Director	Scott Kindt	sigs@rosecityastronomers.org
Youth Programs Director	Ada Hays	youth@rosecityastronomers.org
Sister Club Liaison	Jan Keiski	sisterclubs@rosecityastronomers.org

RCA MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is a reduced rate subscription to Sky & Telescope and Astronomy magazines. The RCA member rate for Sky & Telescope Magazine is \$32.95 for one year or \$65.90 for two years. The RCA member rate for Astronomy magazine is \$34 for one year or \$60 for two years. For more information go to the RCA web site index and click on the link for magazines. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

<http://www.rosecityastronomers.org/magazines/>
 Larry Godsey <magazines@rosecityastronomers.org>



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CDs and videos. These items can be borrowed by members through checkout at the general meetings for a period of one month with renewals available by phone or e-mail to the club library director. The RCA library is constantly growing through many donations and the purchase of new materials. A listing of library materials (PDF format) can be found at the library web page.

<http://www.rosecityastronomers.org/library.htm>
 Jan Keiski <library@rosecityastronomers.org>



“A most singular phenomenon!”

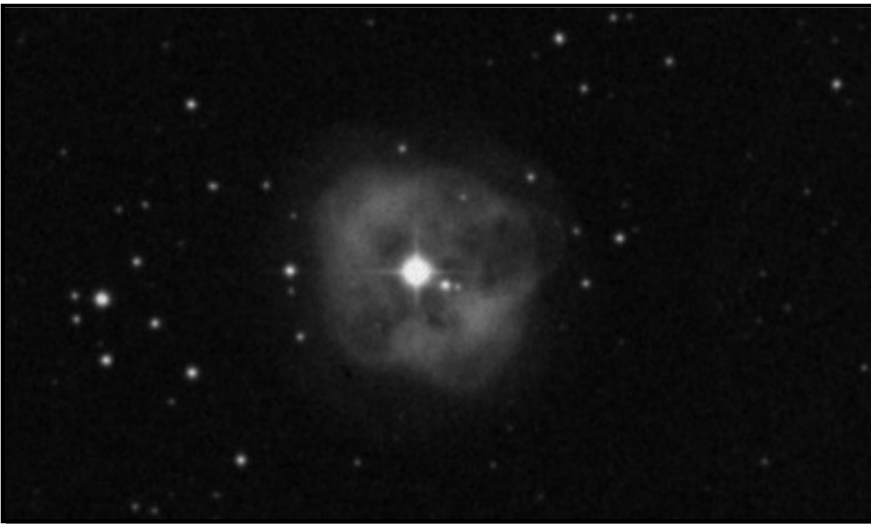
Ever since I first read how the planetary nebula NGC 1514 helped Sir William Herschel change his mind about the physical nature of nebulosity I've found it an irresistible object to observe. That it turns out to be an enjoyable and accessible object is even better.



One of the interesting aspects of 1514 is that the magnitude 9.4 central star tends to mask the nebula when looking directly at the star, which makes the nebula surprisingly difficult to casually sweep up, unless you're using an OIII or UHC type filter.

I recommend using one of these filters when trying to find and observe 1514 to boost the contrast that light pollution takes away. This planetary nebula is somewhat difficult to see not only because it's rather faint but also because it also can look a lot like the haze around a star when your eyepiece is starting to fog up. Which is exactly how Sir William, who didn't have use of these filters, first perceived it:

“I suspected the glass to be covered with damp (dew), or my eye not yet to be in order.”



This is an excellent description of 1514's appearance at low power in a modern amateur scope.

It is the visual appearance of NGC 1514's nebulosity that makes it important to modern astronomy. It sparked Herschel to re-think his view on the physical nature of nebulous objects. This was the second time he'd changed this view.

His original opinion of true nebulosity was based on observations of M42 with his 6.2 inch scope, in which he supposed it was made of a “luminous fluid” that was slowly changing its shape due to gravitational attraction. Later observations of M17 and M27, which he thought he had begun to resolve into stars with his 18.7 inch scope, changed his mind. He then thought that every nebulous looking object would be seen to consist of stars with a sufficiently powerful telescope.

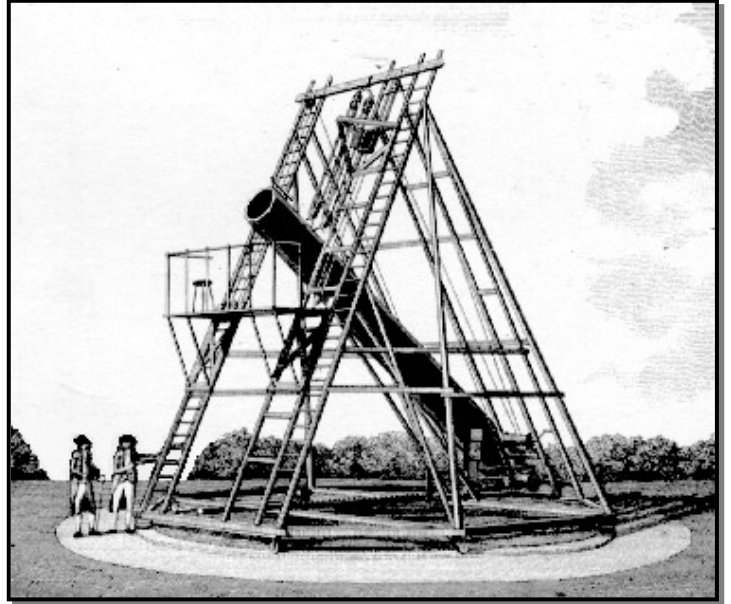
(Continued on page 5)

It's easy to understand Herschel's thinking. Through his powerful telescope he saw so many objects that had previously been regarded as nebulous were actually clusters of stars. It also seems that if a few faint stars could be seen in otherwise nebulous looking objects, like in M17 and M27, that they were then regarded as "resolved". The areas that still appeared nebulous were thought of as swarms of very faint stars that just needed a larger scope to resolve.

Then on November 13, 1790 he discovered NGC 1514, listed as IV69 in his General Catalog:

"A most singular phenomenon! A star of about 8th magnitude, with a faint, luminous atmosphere. The star is perfectly in the center and the atmosphere is so delicate, faint and equally throughout that there can be no surmise of its consisting of stars; nor can there be a doubt of the evident connection between the atmosphere and the star. Another star, not much less in brightness and in the same field as the above, was perfectly free from any such appearance."

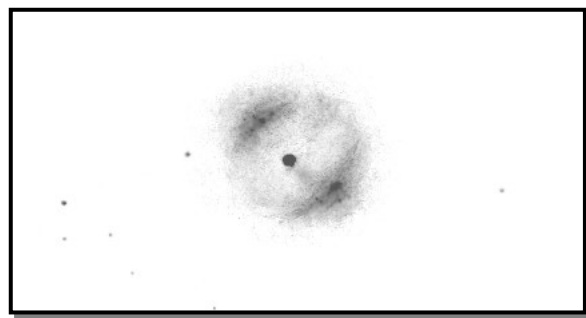
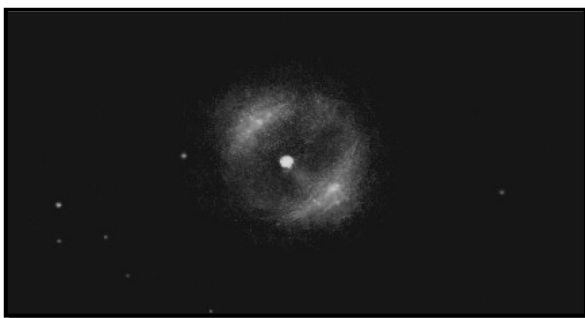
It was this observation that caused Herschel to change his mind back to his original hypothesis that true nebulosity exists. He also surmised that it's the starting point of the evolution of stars and clusters



of stars through the process of gravitational contraction. Years later his son John Herschel shared this view, based on his own observations, and wrote:

"Among all the theories which may be imagined respecting it (unresolved nebulosity), that which regards it as a self luminous or phosphorescent material substance in a highly dilated state or gaseous state, but gradually subsiding into stars and sidereal systems, must certainly in the present state of our knowledge be looked upon as the most probable."

Open minded visual observation had convinced both these great astronomers that nebulous material exists and that it's the starting point in making stars through gravitational collapse – which was pure conjecture on their part but no less impressive for being essentially correct. The astrophysics would be worked out in the 20th century, but I find it impressive that 18th and 19th century visual observations got the ball rolling in the right direction.



(Continued on page 6)

My sketch of 1514 above is one of my more unsatisfying efforts as I didn't capture the exceedingly smooth texture of this planetary nebula. I either have to draw it on a much larger scale or use smoother paper to capture the visual appearance more faithfully. Nonetheless, the sketch hints at what can be seen in a 16 inch and larger scope under western Oregon skies. My Sky Quality Meter (SQM) got a reading a 21.10 while I was making the sketch.

The DSS image at the beginning of this article actually does a better job of conveying the smoothness of the NGC 1514's nebulosity but still falls short of its visual appearance. The fainter extensions along its perimeter are not seen visually in amateur size scopes.

I mostly used 250x, which is a fairly low power for a planetary nebula with my 28 inch scope, but 1514 is rather delicate so I found that the view didn't improve above 250x. It's 2.0 x 2.3 arc minutes in apparent size, about the same as M57, the Ring Nebula, but fainter overall. The central star is magnitude 9.4 which is quite bright for a planetary nebula. 1514's overall magnitude is 10.9.

Sue French, author of Sky & Telescope's monthly Deep-Sky Wonders column, writes that 1514 is seen "*as a tiny, round, faint halo around a 9th magnitude star*" with a 4 inch refractor, and that with a 10 inch reflector "*it's rim is brighter in two large arcs, while the interior of the nebula seems slightly mottled.*" She also notes that 1514 has been nicknamed the Crystal Ball Nebula.

The interplay between the brightness of the central star and the delicately smooth nebulosity makes 1514 a fascinating object to observe. The brightness of the star tends to attract the eye, especially using averted vision, and makes seeing the nebulosity more of a challenge than it would be otherwise. You may also note a blinking effect – while looking directly at the star the nebula may disappear.

An OIII filter not only increases contrast of the nebulosity but dims the star so the overall view is improved, and you'll probably get a better look at both the smoothness of the nebula as well as its uneven brightness. I found that an OIII filter boosts contrast slightly more than a UHC filter, but try both if you have them.

As always, use a range of magnifications to find what gives you the best view. Don't be shy about trying magnifications higher than you might normally use – you never really know what power will work best on a given night.

NGC 1514 is located in northern Taurus about 7 degrees northeast of the Pleiades, near the border with Perseus. It's a relatively easy star hop using the stars 38 and 44 Persei as a starting point. Again, you may want to use an OIII filter with your lowest power eyepiece to help sweep it up.

Once found, you probably won't regard 1514 with the same level of astonishment as Sir William Herschel did over 200 years ago, but I'll bet you will find this subtle object much more interesting now that you know how it helped nudge astrophysics toward our current understanding of the physical nature of nebulae.

Re-thinking an Alien World: The Strange Case of 55 Cancri e

Forty light years from Earth, a rocky world named “55 Cancri e” circles perilously close to a stellar inferno. Completing one orbit in only 18 hours, the alien planet is 26 times closer to its parent star than Mercury is to the Sun. If Earth were in the same position, the soil beneath our feet would heat up to about 3200 F. Researchers have long thought that 55 Cancri e must be a wasteland of parched rock.

Now they’re thinking again. New observations by NASA's Spitzer Space Telescope suggest that 55 Cancri e may be wetter and weirder than anyone imagined.

Spitzer recently measured the extraordinarily small amount of light 55 Cancri e blocks when it crosses in front of its star. These transits occur every 18 hours, giving researchers repeated opportunities to gather the data they need to estimate the width, volume and density of the planet.

According to the new observations, 55 Cancri e has a mass 7.8 times and a radius just over twice that of Earth. Those properties place 55 Cancri e in the “super-Earth” class of exoplanets, a few dozen of which have been found. Only a handful of known super-Earths, however, cross the face of their stars as viewed from our vantage point in the cosmos, so 55 Cancri e is better understood than most.

When 55 Cancri e was discovered in 2004, initial estimates of its size and mass were consistent with a dense planet of solid rock. Spitzer data suggest otherwise: About a fifth of the planet’s mass must be made of light elements and compounds—including water. Given the intense heat and high pressure these materials likely experience, researchers think the compounds likely exist in a “supercritical” fluid state.

A supercritical fluid is a high-pressure, high-temperature state of matter best described as a liquid-like gas, and a marvelous solvent. Water becomes supercritical in some steam turbines—and it tends to dissolve the tips of the turbine blades. Supercritical carbon dioxide is used to remove caffeine from coffee beans, and sometimes to dry-clean clothes. Liquid-fueled rocket propellant is also supercritical when it emerges from the tail of a spaceship.

On 55 Cancri e, this stuff may be literally oozing—or is it steaming? —out of the rocks.

With supercritical solvents rising from the planet’s surface, a star of terrifying proportions filling much of the daytime sky, and whole years rushing past in a matter of hours, 55 Cancri e teaches a valuable lesson: Just because a planet is similar in size to Earth does not mean the planet is like Earth.

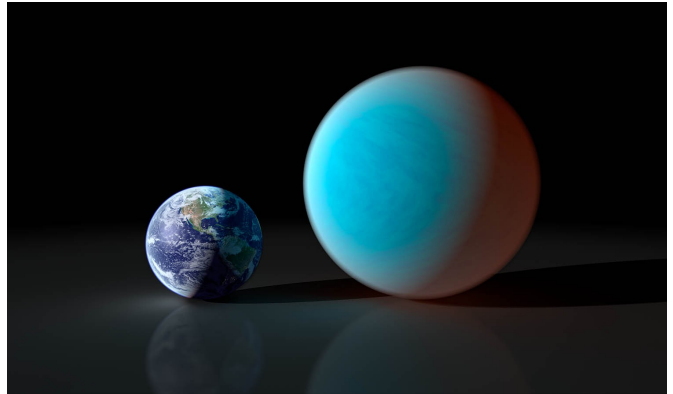
It’s something to *re*-think about.

Get a kid thinking about extrasolar planets by pointing him or her to “Lucy’s Planet Hunt,” a story in rhyme about a girl who wanted nothing more than to look for Earth-like planets when she grew up.

Go to <http://spaceplace.nasa.gov/story-lucy>.

The original research reported in this story has been accepted for publication in *Astronomy and Astrophysics*. The lead author is Brice-Olivier Demory, a post-doctoral associate in Professor Sara Seager’s group at MIT.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Artist’s rendering compares the size Earth with the rocky “super-Earth” 55 Cancri e. Its year is only about 18 hours long!

The Rose City Astronomers telescope lending library will be selling off a few excess telescopes at the December holiday potluck and swap meet. If interested, stop by and check them out in person.

Telescopes are as follows. Clockwise from the upper left:

- #404 Meade Jupiter scope. \$ 75.00 members; \$125.00 non-members
- #405 Celestron C80 Refractor \$150.00 members; \$200.00 non-members
- #407 Meade 10" Newtonian \$250.00 members; \$350.00 non-members
- #406 6" Newtonian OTA only \$100.00 members; \$150.00 non-members



GAMA End of Year Party 2011

“It was our annual dinner for the end of the year. We had a tasty asado that was made by Juan Carlos Rosseto and Walter Leschuk. At the end there was a raffle :). We really enjoyed it!” Carlitos Gutierrez

“We even had a DJ (Enrique)!” Leo Cavagnaro

Carlos Gutierrez (extreme left with his friend Noe to his right), Leo Cavagnaro is in the back row on the right, one person over from the GAMA sign, Enrique Giovanni is kneeling just to the left of the GAMA sign.





Minutes of the Rose City Astronomers Board October 3rd 2011

Held at OMSI Classroom 1

Chair : Sameer Ruiwale

Secretary : Duncan Kitchin

Board Members Present

Sameer Ruiwale (President)
Ken Hose (VP Membership)
Mark Martin (VP Programming)
Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Duncan Kitchin (Secretary)
Larry Froberg (Sales Director)
Jan Keiski (Library Director, OMSI & Sister Club Liaison)
Greg Rohde (Telescope Library)
David Nemo (Observing Site Director)

Call to Order

The meeting was called to order at 7:05 by Sameer Ruiwale and, there being 9 board members present, the quorum requirement of 9 was declared to be met.

Approval of Minutes

Moved: Approve minutes from the August 2011 board meeting.

Moved: David Nemo, Second: Sameer Ruiwale. Approved 7-0-2

Approval of Agenda

The agenda was approved by unanimous consent.

Directors' Reports

Secretary's Report – Duncan Kitchin: **Quorum (9)** met with 9 voting members present.

Treasurer's Report – Larry Godsey: Profit & loss summary & detail, plus balance sheet distributed at the meeting. \$2700 in outstanding bills. Do not have data on Hancock yet, so this is not included. Reports are also available on the website.

VP Programming – Mark Martin: Trying to schedule Rod Mollise for January, but having some issues getting the exact details ironed out. Will try to resolve if possible. Bob McGown attended the 100 year starship conference; this could be an interesting topic for a future presentation that Mark Martin is investigating. Also looking into scheduling more speakers for next spring. Next month's speaker is Professor Jeff Barnes from OSU talking about the Mars Science Laboratory. Pat Hanrahan has been Astronomer-in-residence at a resort in Namibia for the past few months, and has a presentation which Mark is trying to schedule.

VP Observing – Matt Vartanian: Not present. David Nemo: received a phone call from a non-member wanting to know if the RCA Stub Stewart star party was still on. Should we post this information on the website so that it is available to non-members? At present, we do not in general have a primary coordinator for RCA star parties.

VP Community Affairs – Dawn Willard: Not present, but Dawn

has sent out notices for public star parties.

VP Membership – Ken Hose: We had 19 renewals and 21 new members last month. Total membership now stands at 273 members, compared to 260 at the same time last year and 277 the year before that. We took in a total of \$901 in dues in the last month. Based on the current membership, 137 non-renewing members have been removed from the forum and email lists.

Alcor – Ken Hose: Ken has emailed the Astronomical League to request outreach award information. Has also sent a request to the coordinator for a Messier list award.

New Member Advisor – Howard Knytych: Not present.

Media Director – Diana Fredlund: Not present.

Sales – Larry Froberg: Brought in \$389 in merchandise sales, plus a \$10 internal transfer to the library. "We Are Not Alone" book sales were very successful; ordered additional copies in advance of the meeting which all sold out. Have 6 outstanding pre-orders which will either be closed out at the next meeting or returned to general sale.

Book Library – Jan Keiski: Planning a book fair for November.

Telescope Library – Greg Rohde: Had a discussion with somebody in California looking to donate an 8" SCT; they are going to look for somebody more local to donate it to. A better mount has been provided to Dawn for use in public outreach star parties. Also has a pair of 20x80 binoculars for the telescope library.

IDA – Dawn Nilson: Not present

Magazine Subscriptions – Larry Godsey: Nominal

Webmaster – Larry Godsey: Nominal

Site Committee – David Nemo: Nominal

Youth Director : an announcement was made at the last general meeting requesting a replacement.

Newsletter Editor – Scott Kindt: Not present, but Scott is looking for contributions.

SIGs – : Nominal

OMSI –Jan Keiski: Have agreement with OMSI for schedule of meetings for next year. Board meetings will be in classroom 1 except for July and August, which will be in classroom 2. General meetings will be held in the auditorium, except for June, July & August, which will be in the planetarium.

Dates of OMSI star parties for 2012 has also been agreed:

Mar 17 – Vernal Equinox Celebration (LQ)

April 28 – Astronomy Day Celebration (FQ)

May 12 – Planet Parade (LQ)

May 20 – Partial Solar Eclipse (5:00 pm to 7:30 pm PDT) at OMSI

June 5 – Transit of Venus (3:00 pm to 9:00 pm PDT) at OMSI

June 16 – Summer Solstice Celebration (NM)

July 28 – Lunar Viewing (FQ)

August 12 – Perseid Meteor Shower Watch (LQ)

(Continued on page 10)

(Continued from page 9)

Sep 22 – Autumnal Equinox Celebration (FQ)

Sister Club update – Jan Keiski: GAMA 12th Anniversary Dinner last weekend! Biggest Canota site attendance! That is the primary close in observing site for the club. 30 observers which is great for the group! Leo Cavagnaro reported clear skies, great observing temperature contributing factors. IAU Symposium 286 10/3-7. GAMA is sponsoring one of speakers!

Old Business

Proposal for RCA / Clackamas Comm. Coll Haggart Observatory use – David Nemo / Sameer Ruiwale. David has had some conversations with the college related to the memorandum. Focused on being ready to start next spring. Update on Calendar printing costs for larger sized calendar / different printers – Larry Froberg. Larry has made a trip to Anders printing to get some different quotes. Has investigated the possibility of selling calendars through the store, but the window for 2012 calendars is closing and it is likely to be difficult this year. An announcement has been sent requesting images; many responses indicating interest and imagers getting ready to submit images, but not many actual image submissions yet. Will ask for submissions to be in by October 17th general meeting. Also need to complete next year's star party schedule. Kah-Nee-Ta is undefined at this point. We will target a larger calendar size for next year; would be useful to put together a submission schedule with image size details to be published for next year's calendar at the end of this year.

Contact Dawn Nilson to ask about the proposed dark sky conference in conjunction with a speaker for RCA – Sameer. No updates.

Create guidelines for possible telescope award donations to local schools or other organizations – Greg Rohde. Greg is working on this, and discussing with Larry Godsey. Will have something to present in another month or so.

Tabled Business

Update on costs / procedures for shipping a telescope to GAMA in Argentina - Margaret Campbell-McCrea / Larry Godsey

New Business

Review draft 2012 RCA Star Party Schedule – Matt Vartanian
Greg Rohde is in the process of rebuilding at the ATM workshop a 13.5” Dobsonian telescope for Camp Hancock. Greg wants to ask permission to acquire a Si-Tech control system which Dan Gray has agreed to make available at cost. Cost will be approximately \$400. Also needs a new focuser; Ken Hose has a JMI focuser to donate which may be suitable. Greg anticipates that it will be built as a string scope. There are also likely to be some additional parts that will be required; in particular a replacement mirror cell. Motion: John DeLacy & Greg Rohde rebuild the Hancock Dobsonian telescope using excess funds from Camp Hancock star party. Motion passes 9-0-0.

RCA website old document updates – All. No action at this time. Refer Board forum discussion: <http://www.rosecityastronomers.org/forum/simple/index.php?topic=2148.0>

Adjournment

There being no further business, the meeting was adjourned at 8:35pm

RCA Elections for Officers

At the November General Membership Meeting the following RCA officers were elected for 2012:

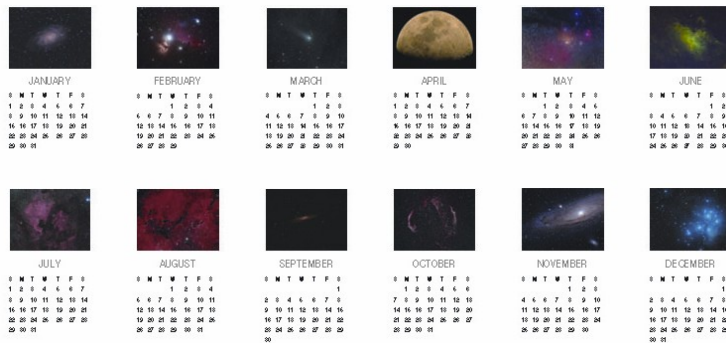
- Sameer Ruiwale- President
- Ken Hose - Vice President - Membership
- Dawn Willard - Vice President - Community Affairs
- Mark Martin - Vice President - Programming (Communications)
- Larry Godsey - Treasurer
- Duncan Kitchin - Secretary

Congratulations to all!

The Vice President - Observing position remains open at this time. If you are interested in volunteering for this position please contact the president of the club.



2012 AT A GLANCE



2012 Calendar by RCA Members

On Sale at the General Meetings

The calendar is 17 inches high by 11 inches wide. It contains all of the planned RCA meetings, SIG meetings and RCA outings.

Cost will be \$10 again this year.

DECEMBER 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				2	2 Noon Downtowners Luncheon Kell's	3 
4	5 7pm Board Meeting OMSI Classroom 1	6	7	8	9	10 Total Lunar Eclipse 3:30am - moonset 10am - 3pm Telescope Workshop 
11	12 7 pm Astro Imaging SIG Beaverton Library	13	14	15	16	17 
18	19 6:30pm Annual Potluck and Swap Meet OMSI Auditorium	20	21	22	23	24 
25  Merry Christmas	26	27	28	29	30	31 

January 2012

Jan 06	Friday	Downtowners Luncheon	Kell's	Noon
Jan 07	Saturday	Telescope Workshop	Swan Island	10am-3pm
Jan 09	Monday	Board Meeting	OMSI Classroom 2	7pm
Jan 09	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
Jan 16	Monday	General Meeting	OMSI Auditorium	6:30pm
Jan 18	Wednesday	Cosmology SIG	Not Meeting in January	

<http://www.rosecityastronomers.org>

Rose City Astronomers
Oregon Museum of Science and Industry
1945 SE Water Ave
Portland, OR 97214-3356