The Rosette Gazette

Volume 22, Issue 7 Newsletter of the Rose City Astronomers July, 2010

RCA JULY 19 GENERAL MEETING

The State Of Anthro–Earth

THE STATE OF ANTHRO-EARTH:
A Visitor From Far, Far Away Reviews the Status of Our Planet

A Talk (in Earth-English) By Richard Brenne

Enrico Fermi famously wondered why we hadn't heard from any other planetary civilizations, and Richard Brenne, who we'd always suspected was probably from another planet, thinks he might know the answer. Carl Sagan thought it was likely because those on other planets blew themselves up with nuclear weapons, but Richard thinks its more likely that burning fossil fuels changed the climates and collapsed the civilizations of those we might otherwise have heard from. Only someone from another planet could discuss this most serious topic with Richard's trademark humor (in a previous life he was an award-winning screenwriter - on which planet we're not sure) and bemused detachment.

Richard Brenne teaches a NASA-sponsored Global Climate Change class, serves on the American Meteorological Society's Committee to Communicate Climate Change, has written and produced documentaries about climate change since 1992, and has produced and moderated 50 hours of panel discussions about climate change with many of the world's top climate change scientists. Richard writes for the blog "Climate Progress" and his forthcoming book is titled "Anthro-Earth", his new name for his adopted planet.

All are Welcome! Monday July 19

Social Gathering Fair: 7 pm. General Meeting Begins: 7:30 pm.

Location: OMSI Planetarium

In This Issue:

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

Last Quarter Moon	New Moon	First Quarter Moon	Full Moon
Aug 2	Aug 9	July 18	July 25

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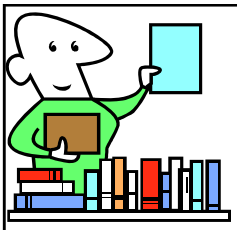
RCA MAGAZINE SUBSCRIPTIONS

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 $65.95 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@rosecityastronmers.org>



RCA LIBRARY

The Rose City Astronomers main-tains 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>

Local Happenings

MEMBERSHIP RENEWAL

It's past time to renew your membership with the Rose City Astronomers. Our membership year runs from July 1st to June 30th. If you've joined the club this year, your membership is good until June 30, 2011 as you've paid a pro-rated fee when you joined.

Dues 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. Plenty of renewal forms available also. You can 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 outside the entrance of the OMSI 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

2011 RCA Calendar

When is the Trout Lake Star Party in 2011? If I get a telescope for my birthday will it be near the full moon? These questions and more could be answered with a 2011 RCA calendar. The calendar is in the planning stages at this time with a publication date towards the end of this year.

Camera's ready? What we need from you is your calendar worthy photos. Photos should be related in some way to astronomy and should preferably be taken within the year. Submissions are due by September 1, 2010. Please email all submissions to Greg Rohde at: telescope@rosecityastronomers.org

MAY 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

“Telescope Transformation – Making Observing Easier”

July, 2010

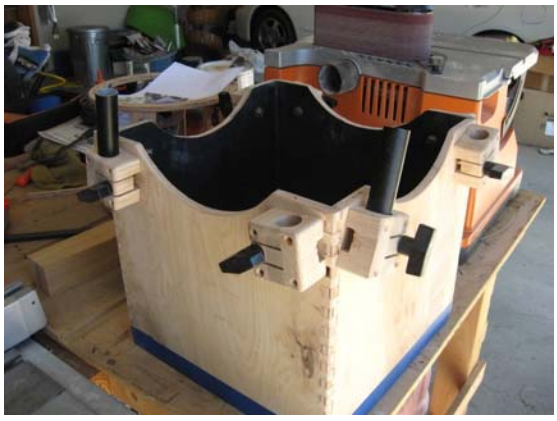
By Tom Koonce and Don Bryden
Antelope Valley Astronomy Club, Inc.
Lancaster, California

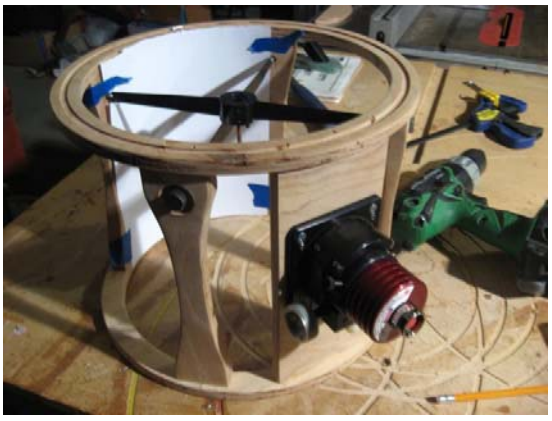
What if the sky was clear and steady, the temperature was comfortable, and all that kept you from observing the stars was that you couldn’t physically move your telescope outside? What if you were unable to stand for long periods of time at the eyepiece without significant pain? What if manipulating small parts with your hands made it difficult and frustrating to assemble your telescope for the night’s viewing? Situations like these are more common than major telescope manufacturers seem to acknowledge. The reality is that amateur astronomy has a ‘mature’ demographic, and many of us have physical limitations like these that hinder us from being the best observers that we can be. The good news is that there are ways to maximize our enjoyment of astronomy through modification of commercial telescope equipment, adaptation, and innovation.

An excellent example of such modification and innovation was Antelope Valley Astronomy Club (Palmdale, CA) President, Don Bryden’s recent project undertaken for a close observing friend. His friend, Duane, has some significant physical limitations and found it cumbersome, and sometimes even dangerous, to lift his C10, 10” f/4.7 newtonian onto his CG-5 mount. The manual non-GoTo mount had small controls and locking levers that were difficult for Duane to manipulate. The telescope provided great views, but because of its weight, lack of handholds, and slippery sides, it had been dropped on occasion, luckily without serious damage, but it was clearly not the right telescope configuration for the user.

Don Bryden and another mutual friend first thought to help Duane with this project by simply mounting the newtonian in a dobsonian-style cradle mount. But as they thought this through, they realized that a solid tube dobsonian would present transportability problems and be hard for Duane to store. Since Don had recently finished building a truss-tube dobsonian for himself and had enjoyed the work, he suggested converting the C10 into a truss-tube scope. High level design considerations were that the resulting telescope would have to be simple for Duane to setup, use, and store. Other considerations were that since Duane has difficulty with the use of his hands, any hardware should be easy to manipulate, but hard to lose.

During the build process, the truss-tube dob emerged and incorporated further considerations of the user’s needs. The focuser was set at a 45 degree angle from the plane of the altitude motion for ease of use and the focuser height was tailored to a convenient height for Duane when in a seated position. A stable 14” base was added and dimensioned so that the secondary cage fits into the mirror box which fits into the base for convenient transport and storage. Each individual section is light weight with easy ways to hold onto them.

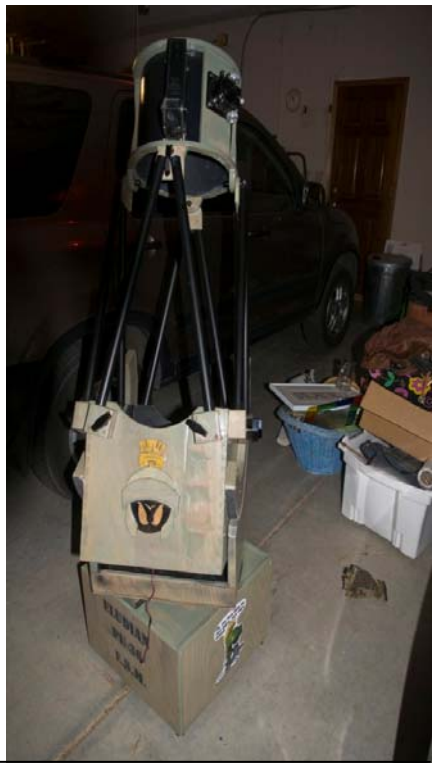




Large knobs and thoughtful design details make the scope easy to use

The spider and mirror cell were from the original design and required an allen wrench for adjustment. Don made a slot in the side of the secondary cage so that the allen wrench was always available. No other tools are required for setup and adjustments. A major design decision was the method to attach the truss tubes in four groups of two at the top to wooden fittings that in turn receive the secondary cage. To make the attachment of the secondary cage to the truss-tube wooden fittings, bicycle seat post quick-release clamps were used which are simple to operate and impossible to lose.

The resulting scope was dubbed "Marvin the Martian" for its green color and custom Marvin the Martian emblem. It took approximately 20 hours of Don's labor spread over three months, allowing him time to think through the design challenges that arose. The telescope holds collimation well, is comfortable to use for Duane and is considered a resounding success by him. The telescope was entered in the 2010 Riverside Telescope Makers Conference contest and won a special Merit Award.



Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, August 9th, 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: Saturday, July 24th, 3:00pm
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 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, July 19th, 6:30pm
Location: OMSI Planetarium
Topic: Astro Imaging
SIG Leader: Howard Knytych
Email: newmembers@rosecityastronomers.org
http://www.rosecityastronomers.org/sigs/new_members.htm

Telescope Workshop

When: Saturday, July 24th, 10:00am - 3:00pm
Location: Technical Marine Service, Inc.
6040 N. Cutter Circle on Swan Island

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 21st, 7:00pm
Topic: Big Bang Inflationary Universe
Presented by: Dr Duane Ray

Location: Linus Pauling Complex,
3945 S.E. Hawthorne St., Portland.

SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm

OMSI Star Party July 17 Lunar Viewing

http://www.omsi.edu/starparties
Rooster Rock State Park and Stub Stewart State Park

Because Earth's moon will be in a perfect position for viewing on Saturday, July 17, the Oregon Museum of Science and Industry, Rose City Astronomers and Vancouver Sidewalk Astronomers have organized Star Parties at Rooster Rock State Park and Stub Stewart State Park starting at 9:30 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 the planets Venus, Mars and Saturn, near first quarter Moon, star clusters and more!

The angle of the sun will cause deep shadows to fall on the moon's surface, making its highlands and craters more easily visible. Beginning and expert stargazers are invited to use a variety of telescopes owned by club members to view the moon and other objects in the sky.

On the scheduled day of the star party, it is suggested that interested visitors call the OMSI Star Parties Hotline, 503 797-4610 #2, or check the OMSI Star Parties web site for possible weather-related cancellations. The event starts at sunset and is free with $5 parking per vehicle. Warm clothing and a flashlight with red light are recommended. Personal telescopes and binoculars are welcome.

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.

Trout Lake Star Party Report

By Scott Kindt

Trout Lake star party is an annual event put on by the Rose City Astronomers. 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.

This year I decided to go up on Thursday evening to get an extra night of dark sky observing in. I'm glad I did as Thursday was the best evening of the weekend. Despite a late start I was still able to make it just before dark. There was already three other RV's in the parking area. I set up next to one of them belonging to a friend.

Thursday was very clear and steady and I was able to log 8-10 objects on my list. The occasional light breeze would sweep through and disappear along with the rare vehicle on the forest road. Just what people are doing driving through the forest at 1:30-2:00 am on a Friday is beyond me. I outlasted all the other observers just barely. I turned in about 3am. The last temperature noted was 62ºF. Nice!

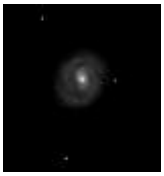
Friday dawned bright clear and warm and only got warmer. By the late afternoon it was in the mid to upper 90's on that blacktop oasis. That kind of heat just saps your energy. One of the folks I camped next to had enough ham radio gear to direct any major emergency. I spent a good portion of the day just watching and listening. So much more can be done with the radios these days. Throughout the day several more observers pulled in to camp. Towards the late evening skies began to cloud up with high clouds and some bands of thicker clouds. This proved to be the norm for the night. I had fun manually tracking the ISS with a telescope for a young lady and her family after she said it couldn't be done. I only did some brief observing before deciding to catch up on some sleep and hopefully have clearer skies later in the night. That didn't pan out. Every time I got up and looked out the skies looked the same or worse.

Saturday began cloudy and slightly cooler. By the end of the day it still got up to the low 90's. The wind picked throughout the day, literally. There were several that were relocated by a wind gust. Several groups went out to partake in some of the local sights such as Mt. Adams, the ice caves, and the waterfall tour. I opted to stay put this time and work on some camper projects I brought along. By evening as it cooled off people were perking up and eying the clear skies. The skies remained clear all night long, but the wind remained strong and gusty until well after midnight. Lots of stuff blown off of tables including one gentleman's eyepiece case. Luckily they were in plastic cases. I played with my binoviewers and a wide field scope. I didn't bother with any serious observing. High magnifications showed some bloated stars and less than ideal seeing. I went to bed around 2. The last temperature I saw was about 60ºF.

I planned on staying over on Sunday night as well, but after hearing the weather forecast was for the same with possibly more wind I packed it up and left with everyone else.

The Observer's Corner

Howard Banich



A night with the Steward Observatory's 90 inch Bok Telescope on Kitt Peak

How did I get to have a night to observe with a 90 inch telescope? Just lucky I guess, as along with eight other amateur observers I was invited to use the Steward Observatory's 90 inch (2.3 meter) telescope on Kitt Peak on the night of Sunday, April 11, 2010. Use of this telescope is $3000.00 per night so the per person cost was about the same as a really nice eyepiece. Actually, "just lucky" doesn't really describe my invitation – extremely, massively fortunate is more like it.

David Brooks, Carol Burleson, Dan Gray, Tom Osypowski, Joe Rottmann, Gary Klein, Frank McMurray, Chris Mobley and myself made up the observing team. David was able to reserve the 90 inch scope and invited some of his fellow amateur astronomer friends to join the fun. We were the ones who could make it.

As it turned out my observing list was chosen as "the list" and by the time we were heading to the scope I'd become the de facto point man of what we would observe. Now I was really licking my chops – I was going to lead the discussion of where to point an instrument that's essentially the same size as the Hubble Space Telescope.

I've always wondered what a human observer could see with the HST in orbit, and this would be as close as I'm likely to get. Was I pumped? Oh yeah!

The sky was clear and transparent on April 11th, but it was also windy as the sun began to set. After we finished our dinner in the Kitt Peak dining room we made our way to the 90 inch dome. David pulled a key out of an information packet from the observatory, unlocked the door and we walked in. As you can see from the photo the observatory is on top of a tall cylindrical structure and once inside we could either take the elevator up three stories to the scope or walk up the spiral staircase. We all took the elevator because we had our observing stuff to carry, but later that night I came down the spiral staircase for fun.

We met the telescope operator, Dennis, in the third story of the dome by the scope. After chatting for a bit we gave him a copy of our observing list and he showed us how to operate the observing platform controls and the telescope focus and slew hand paddle. Other than that, we simply had to tell him what object we wanted to see.

Here's how the process worked. Dennis was in the warm, cozy and well lit control room and we were in the cold, dark and breezy dome. We would decide what to

The Bok 90 inch telescope website is at http://james.as.arizona.edu/~psmith/90inch/90new.html. The scope is an f/9 Ritchey-Chretien and with a 41mm Panoptic eyepiece it produced 502x. A 31mm Nagler gave us 663x and a 17mm Nagler magnified 1210x. The 90 inch threw up an excellent star test but best of all it presented us with crisp star images when the seeing settled down.

look at and either yell it out or turn on the intercom to let him know what object to move the scope to next. We'd fully lower the observing platform – more on that later – then he'd acknowledge and slowly open the shutter on the window of the control room that looks into the dome - it's to the west of the scope. He'd make sure we and the observing platform were out of the way and then slew the scope. When the scope found its target he'd close the shutter, we'd move the observing platform into position and start observing.

The observing platform is basically a huge XYZ stage that is moved into position via a big hand paddle. Pretty cool really. It's about seven or eight feet square and has a railing only on its north and west sides along with a small table and red lamp.

There's also a ramp on the west side to walk up but often the scope was positioned so it was more convenient to simply hop up on the more open east side of the platform

With the platform hand paddle we could adjust the height of the platform for either standing or seated observing depending on the how high the back end of the scope was, and we came across only one object (SNR Cassiopeia A) that left the back end of the telescope up too high to reach.

The open sides of the platform led to a accident later in the evening when Carol inadvertently stepped off in the dark and broke her wrist - #$%*#!!! Fortunately it was a clean break and a full recovery is expected, but at the time it seemed unbelievable that something like that could happen.

The wind swirled and blew all night long with gusts peaking around 30 miles an hour or so. Being inside the dome kept the full force of wind off of us and the scope, but it did swirl through the dome slit and around inside the dome. Plus the sound of the wind gusting around the dome's slit produced eerie and sometimes startling sounds. A few times we were concerned that we might have to close the dome and call it a night.

To me the experience was similar to being at sea during a storm at night – the sound effects were right on, all that was missing was the rolling and pitching. Heck, with Carol's broken wrist we might as well have been pitching around.

By the way, the seeing seemed to follow the wind gusts – when it was blowing hard the seeing was poor, and when the wind settled down the seeing was often sub arc second.

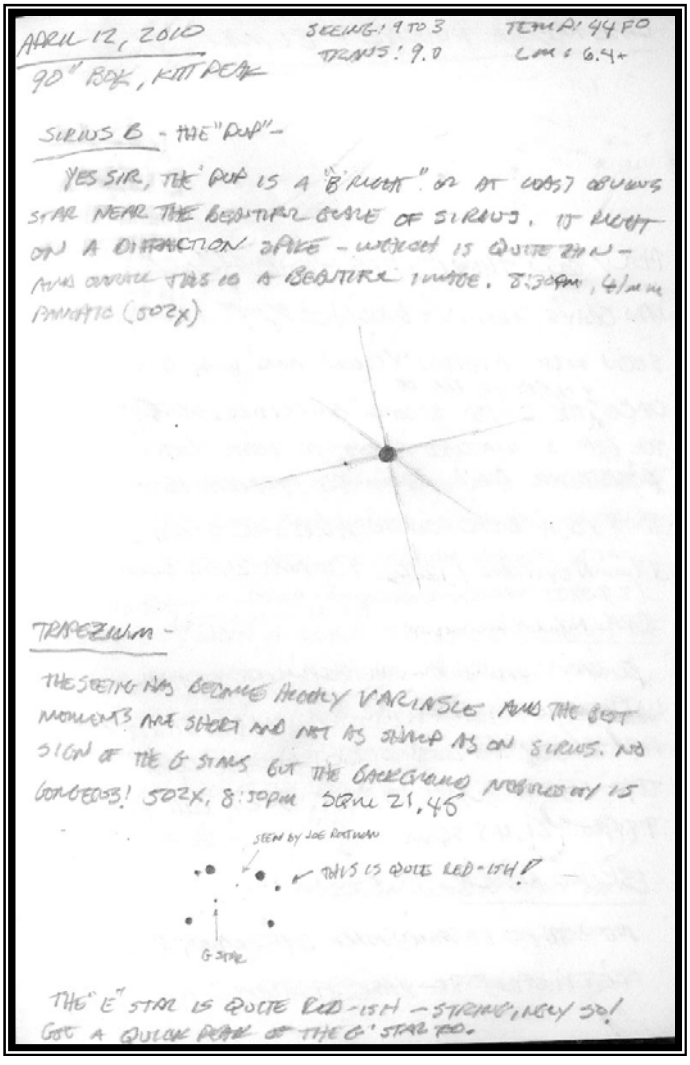
Ok, so let me summarize the situation. We were given the keys to the 90 inch Bok telescope on Kitt Peak, and we had our own telescope operator to point the scope at anything that was above the local horizon for however long we wanted. We were at 6800 feet altitude on Kitt Peak, one of the more famous observatories in the world, and the wind was howling. As the sun set we

gathered on the Bok Walk, a balcony facing south on the top level of the observatory. A couple of us saw the Green Flash. I think our combined excitement could have powered the entire mountain for a week. And now for the good part - what did we see?

Sirius A and B
8:30pm, No SQM reading, 502x
As twilight darkened we started with Sirius. The idea was to see the Pup, Sirius B, the close and faint white dwarf companion to Sirius. Although it can be seen in amature size scopes in steady seeing, most of us had never had the pleasure because Sirius is generally too low to get steady seeing conditions. Sirius would also be a great way to star test the 90 inch scope and assess the seeing conditions. As it turned out I was the first to have a look, and because everyone wanted to know what I saw I gave a running description of what I was seeing to everyone else.

My positive comments only served to increase everyone's desire to have their turn right away. It became common for the person at the eyepiece to feel like they barely had any time to look while everyone waiting for their turn felt like the person at the eyepiece was taking too long. Basic human nature I suppose.

Back to Sirius A and B. The Pup was instantly visible right on a diffraction spike. Sirius was a brilliant, sharp dot of light with four diffraction spikes, which were exceedingly thin, along with 5th and 6th and wider spikes – no idea where they came from. The view was gorgeous. I had two turns at the eyepiece using the 41 Panoptic eyepiece.



Trapezium
8:50pm, 21.45 SQM, 502x
The sky was almost dark as we had the scope turned toward the Trapezium inside M42. The idea here was to try and see as many of the faint stars inside and around the Trapezium as we could, with emphasis on the G and H stars. The seeing was more variable when I had my turns but the G star popped out easily enough when the seeing cooperated. Joe saw a second star near the G but none of us saw the H stars just outside the trapezium.

Dan was the first to notice the E star was a distinct red color – I'd missed it on my first look but it jumped out at me on my second – I must have been too focused on looking for the G and H stars on my first look to see something so obvious.

What makes the G and H stars so interesting, other than being generally tough to see, is that they have proto planetary disks that are being blown away by Theta C, the brightest of the Trapezium stars. The disks were not visible though. However, the background nebulosity of M42 was tremendous! It was like a wind swept ocean of clouds studded with the sparks of new stars. It seemed so dense, much more so than any other view I've had of this area and the color was a fairly saturated turquoise green. It was so mesmerizing I didn't even think to pan around the rest of M42 – I could kick myself now that I didn't.

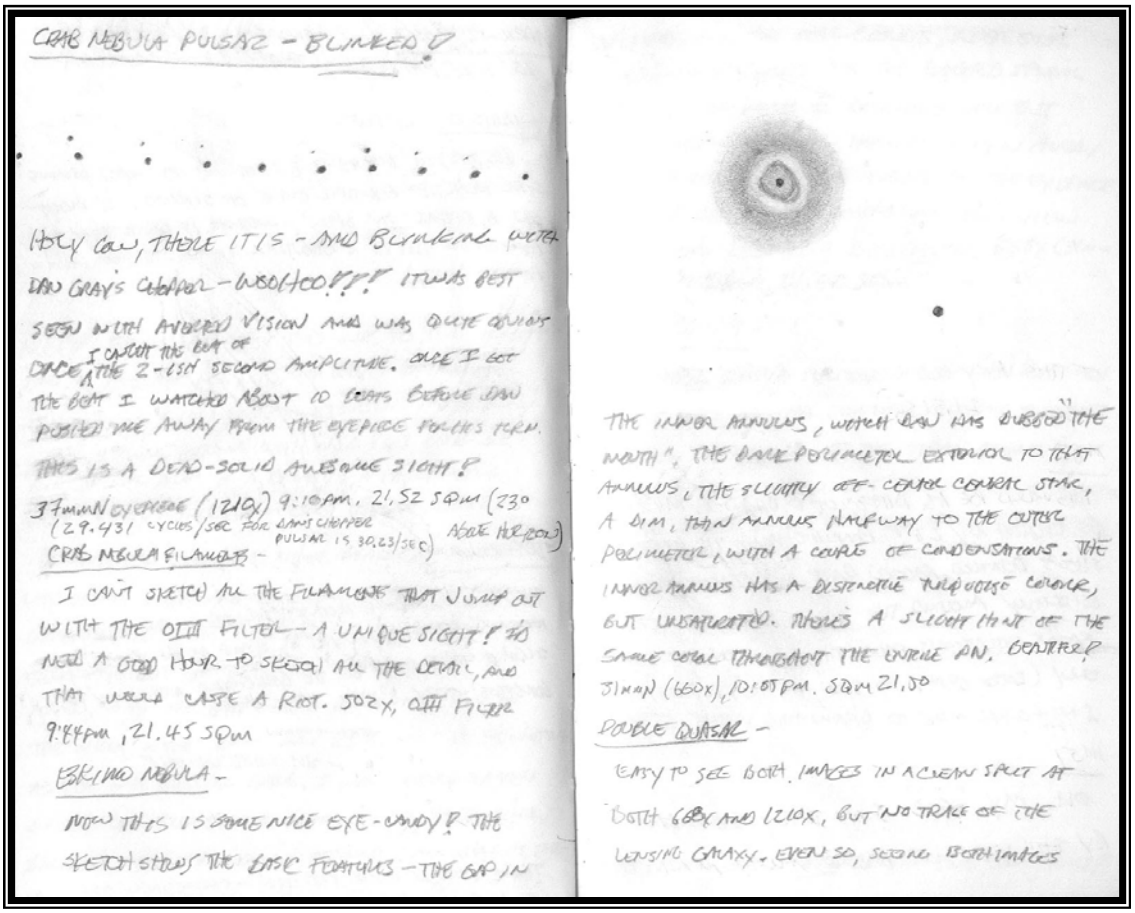
A few words about my sketches and notes: With one exception the sketches were quickly roughed in from memory as soon as I stepped away from the eyepiece. A few days later I went back and finished the sketches using photos and my notes to refresh my memory, so don't take each detail as the literal truth of what I saw but rather look at the overall sketch as my impression. My notes were written quickly so I wouldn't miss my next turn at the eyepiece, making them even more difficult to read than normal. Taken together I hope they convey the gist of what I saw.

Crab Pulsar and Nebula
9:10pm, 21.52 SQM, 1210x
Now that it was dark the next object was the Crab Nebula. Our plan was to blink the Crab's pulsar using the "chopper" Dan made for a successful attempt using the Kuiper 60 inch telescope a couple years ago.

The chopper is a rotating shutter that Dan set to rotate just slightly off from the exact period of the pulsar so the visual effect would be that the pulsar would gradually dim and brighten. There's a foreground (?) star right next to pulsar that's slightly brighter so it acted as a steady counterpart. Dan's chopper worked again! The pulsar dimmed and brightened with about a 2 second cadence that was visible with direct vision and really jumped out with averted vision.

I was thrilled. Reading about the pulsar is one thing but to directly experience its 30 rotations per second in this way brought it to life as a real object. The 31mm Nagler gave the best view for Dan and I, others preferred the 41mm Panoptic view.

Next was the Crab Nebula itself using the OIII filter. Gary had made a huge, custom star diagonal for use with the 90 inch scope and he included a filter wheel, so we could spin the OIII filter in and out as we pleased. Without the filter a few of the filaments within the nebula were dimly seen but they were nothing compared to the OIII view. I've seen the brightest filaments well with an OIII filter through 20 inch and 28 inch scopes, but the 90 inch view was full of the fainter filaments too. Contrast was low so this was a subtle treat, but even so it was a great sight.



Eskimo Nebula
10:04pm, 21.50 SQM, 663x
The Eskimo Nebula was next. I've had some great views of this bright planetary nebula at high powers before but even at first glance there was significantly more to see.

First of all, the bright inner ring is a rounded trapezoid shape with a small gap at the narrowest end – Dan dubbed this "the smile". Along with the bright central star it gave the Eskimo the look of a happy Cyclops. The inner area was rather bright and overall this area had a subtle blue turquoise hue. There was a dark ring immediately around the trapezoid and then a smooth, broader ring of nebulosity that has several small, slightly brighter condensations in it. The outer perimeter was faint but distinct and had a less saturated turquoise hue.

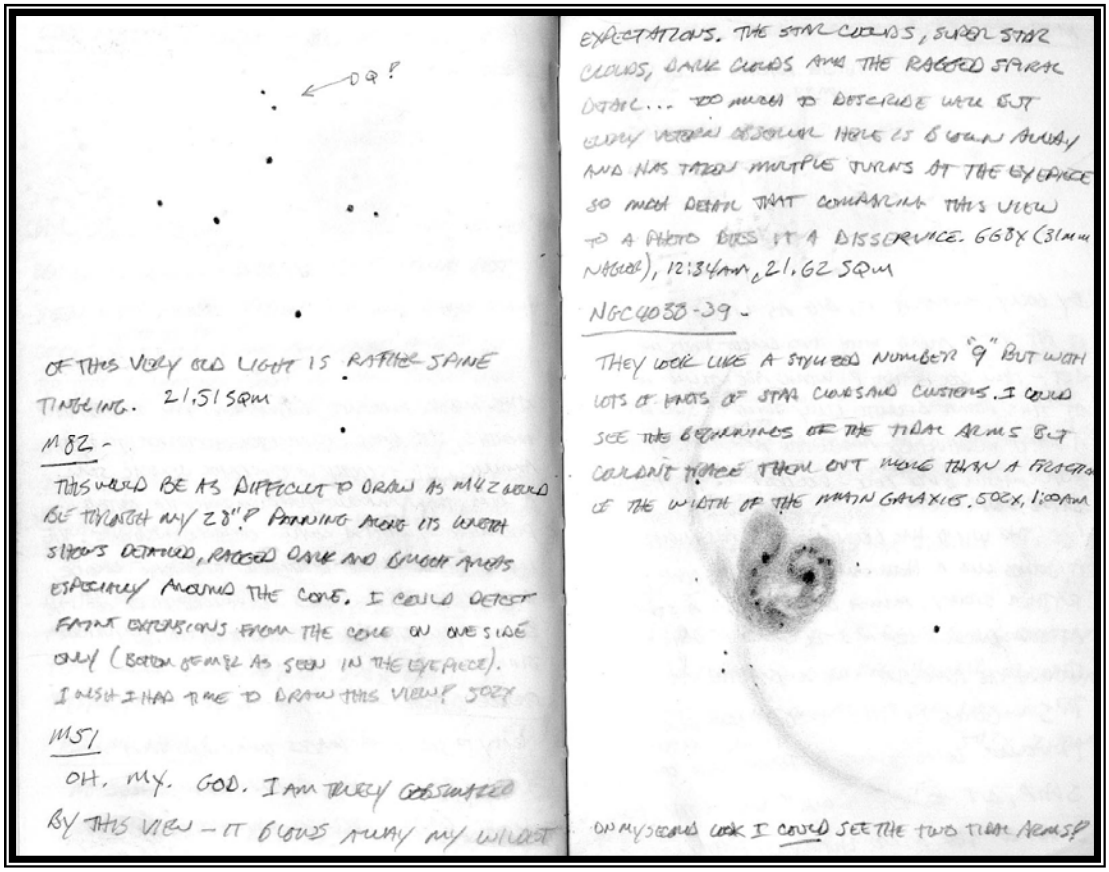
Overall it was a beautiful sight that I came back to three times.

Double Quasar, Q0957+561 A/B
No time recorded, 21.51 SQM, 663x and 1210x
The Double Quasar is a gravitationally split image of a single quasar that is located about a third of the way to the edge of the observable universe. To be able to detect it at all is amazing, and even though I've been able to split the two images – which look exactly like a very dim double star – before with my own scopes I was still impressed to seem them so bright and cleanly split through the 90 inch.

Although I could see no trace of the lensing galaxy, some of the other observers say they might have. For me, clearly seeing gravitationally lensed light this old from so far away was rather spine tingling.

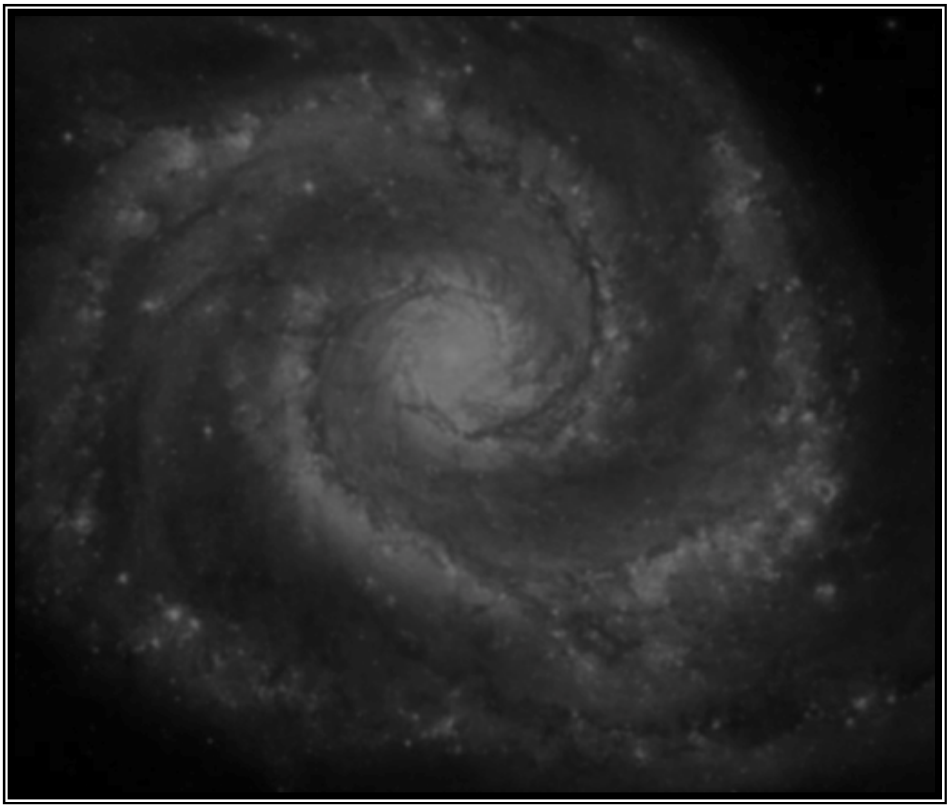
M82
No time recorded, No SQM reading, 502x
This would have been nearly as difficult to sketch as M42 would be through my own scope because the view was chock full of amazing, chaotic detail. Panning along its length showed detailed ragged dark and bright areas, especially around the core. I could even detect faint extensions from the core on one side. I wish I'd had enough time to try a sketch - a couple of hours would have been a good start. This was a tremendously satisfying sight of this energetic galaxy.

M51
12:34am, 21.62 SQM, 663x
The debate was between pointing the scope at Mars, which was starting to get rather low in the northwest or at M51, which was almost directly overhead. Lose our night vision or gaze into the most spectacular spiral galaxy in the northern hemisphere?



I was pushing for Mars but was happy to go with the M51 crowd because the seeing had been softening toward the end of looking at the Eskimo Nebula so Mars probably wouldn't be at its best.

Before getting to what I saw, this is a good spot to talk a little about the experience of using the 90 inch. When pointed straight up, the observer is directly under the massive OTA. More than once I thought about the tons of telescope above me and how thoroughly flattened I'd be if it crashed to the ground. Not that there was any chance of that happening but the thought did flit by from time to time – the OTA is about the size of a small school bus…



Back to the view of M51 - remember the first time you saw Saturn or the Moon through a telescope and the impact it had on you? This view of M51 was like that. What did I see? *Everything*, right down into the core. It would take months to do a proper sketch at this level of detail so the illustration here is an HST photo that I turned to a gray scale image and slightly degraded to give an impression of what was in the eyepiece. The photo shows a somewhat larger chunk of M51 than the field of view provided but gives a better sense of what I saw from panning around a little.

Spiral arms for sure, no surprise there, but it was the star clouds, super star clusters and HII regions that populated the spiral arms that jumped out. The ragged dark lanes were also visible along the inner edges of the spiral arms. The inter-spiral arm structures were impressive and the overall spiral structure continued right into the core. The connecting bridge with the companion galaxy, NGC 5195, was as obvious as you might imagine it to be, and several of the background galaxies nearby also stood out quite well.

Look again at the modified photo - the detail is everywhere, and lots of it. The view through the eyepiece was like that. Looking back, this was the object that came closest to overwhelming me at the eyepiece. So much to see that was easy to see – if I ever get another chance at M51 through the 90 inch I want an hour of eyepiece time for myself. As my notes state, "Oh. My. God."

By the way, it was while looking at M51 that it occurred to me that the image was flipped compared to the Newtonian view I'm used to so I've flipped the simulated photo here to match.

NGC 4038 and 4039 – the Antennae Galaxies
1:00am, No SQM reading, 502x

NGC 4038 and 4039 are known as the Antennae Galaxies because of the two, long curved tidal streamers of stars that have been created by the in-progress merger of these two formally normal spiral galaxies. There's also a huge amount of detail within the two galaxies – all of which is well seen in photos and were the objects of desire through the 90 inch. The view was everything I'd hoped – on my second look.

On my first look I didn't see the two tidal tails but the two galaxies were full of bright knots and dark patches and the larger, brighter galaxy looked like a stylized "9". The interplay of the bright and dark areas was fascinating but I

was disappointed the two tidal tails weren't visible. I could see the beginnings of each tail but that was it – still a satisfying look for what felt like 30 seconds worth of looking.

It was on my second, longer look that I was able to see the tidal tails. As is often the case, once I saw them they were rather easy to see and I could trace them for what seemed like their full length. So I updated my sketch to include the tails, which is why one of them runs through my notes.

M87 Relativistic Jet
1:30am, 21.52 SQM, 663x

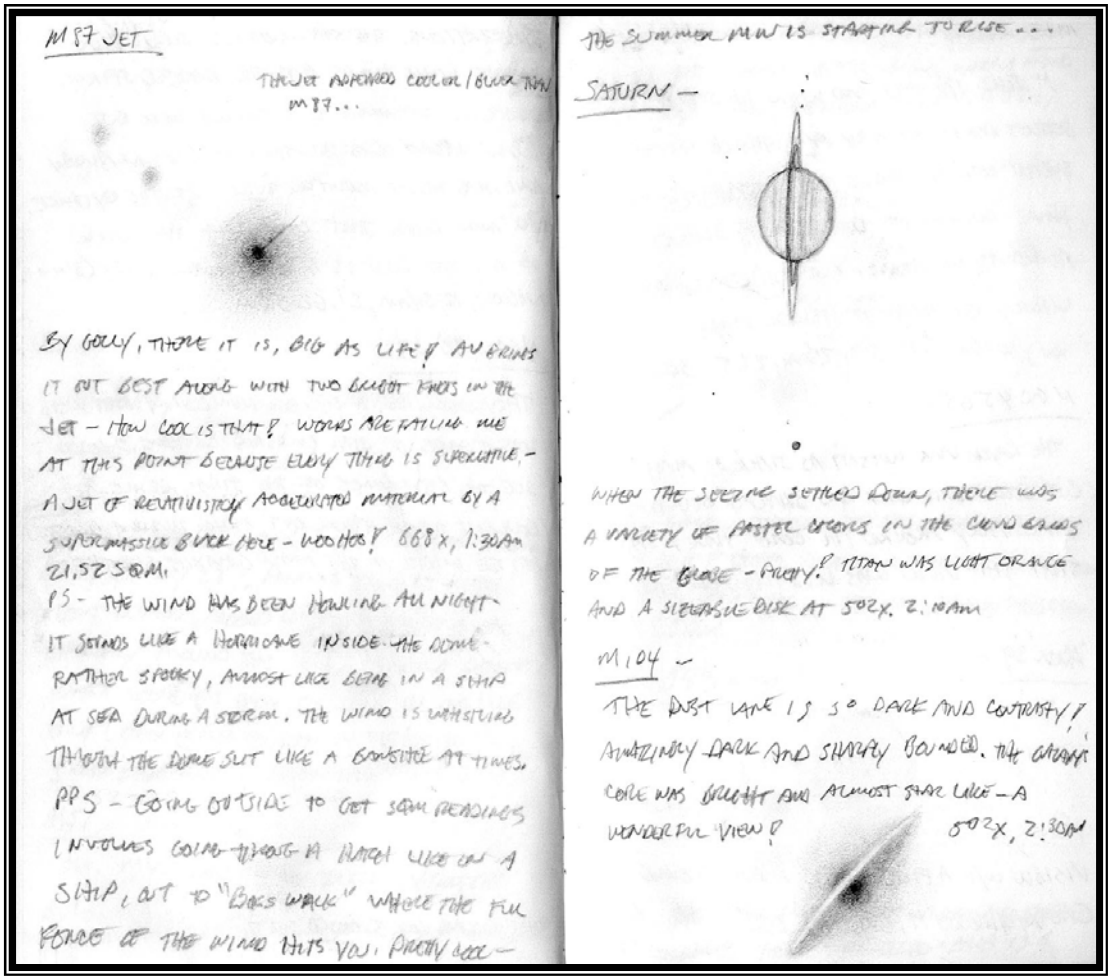
M87 is about as bland as it gets for a deep sky object, even through a 90 inch scope. It very gradually dims from its relatively bright core out to a perimeter edge that fades into the background of space without a discernable boundary. It's large too, and there are several nearby satellite galaxies floating in the vicinity. Pretty much what I expected but it would have been neat to have detected of few of its globular clusters. I didn't look all that hard for them because I had another object in mind.

We pointed the scope at M87 for a look at its relativistic jet shooting from its core, and that's what we saw, and rather easily too. It's exceedingly thin, thinner than my sketch suggests, ever so slightly bluish and I was even able to see two knots of material along its length. Holy smokes, what a great sight that was! Seeing this 5000 light year long ray of matter accelerated to nearly light speed by a super massive black hole from 50 million light years away – and with detail – blew me away.

I had several looks at the jet and would have taken a few more if we weren't in a hurry to have a look at Saturn before it got any lower in the western sky.

Saturn
2:10am, No SQM reading, 502x

I've had some killer looks at Saturn over the years all the way up to and past 1000x, but those views all had one thing in common – dead solid moments of seeing. Alas, tonight we were not blessed with such seeing, at least not while I was at the eyepiece, so the view was perhaps the most "ordinary" of the night. However, the subtle pastel colors of Saturn's globe were a beautiful detail I'd never seen before so this ended up being one of my most memorable view of Saturn ever even so.



M104
2:30am, No SQM reading, 502x
The Sombrero Galaxy overflowed the field of view and the well defined dark lane was a seemingly impossibly dark slash clear across the visible length of the galaxy. The dark lane seemed blacker than surrounding space to my eye, but then the entire field of view was taken up by the galaxy so it was difficult to directly compare the true sky background to the dark lane. Nonetheless, after slewing the scope around to take in the full extent of the Sombrero the dark lane still seemed really, really black.

"SQM" refers to the Sky Quality Meter, made by Unihedron (http://www.unihedron.com/projects/darksky/). About the size of a large bar of soap, the SQM measures the darkness of the night sky - a measurement of 22.0 is the darkest a clear, unobstructed sky can get from the Earth's surface. Some of the objects in this article don't have a reading because I either didn't have time to get out to the Bok Walk to take a measurement or I simply forgot. The SQM readings presented here are the average of three measurements.

M13
2:50am, 21.51 SQM, 502x
Even though the field of view was tiny, how could we not have a look at M13? It overflowed the 502x field of view. When the seeing settled down not only were there lots of subtly colored stars but it also appeared to have clumps of dark dust silhouetted against the star field. It's more likely that they were areas with fewer stars, but even so the appearance was rather startling.

The stars colors were unsaturated reds, yellows and blues that came and went with the seeing, but they're what I remember the most about this view. They were spread throughout the field of view, and given the density of stars near the center of M13 it made for the prettiest sight of the night when the seeing allowed the colors to come through .

If we could have seen the entire globular at once this may have become my favorite sight of the evening. Where's a 55mm Ethos when you need one?

NGC 4565
3:10am, No SQM reading, 502x
This beautiful object is one of my favorite deep sky objects and is certainly my favorite edge on galaxy. Through the 90 inch the dark lane was dark and sharply bounded, especially near the core, but not as much as M104's was.

The galaxy didn't show any other detail that I hadn't seen before – I had rather hoped to see some irregular detail along the edge of the dark lane but I sure couldn't see any. Since we had to pan along its length to see the entire galaxy I found it to be a rather unrewarding view and was the only one of the evening that I was even slightly disappointed in. Perhaps my expectations were too high.

That said, this will no doubt remain my favorite edge on galaxy in any scope that will fit the entire thing in one field of view.

Abell 39
3:30am, 21.31 SQM, 502x
Abell 39 had an ethereal beauty I will always remember, but it's also the faintest object we looked at. Without an OIII filter it was visible as a circular ghost, along with a background galaxy and a handful of stars that were seen through the planetary.

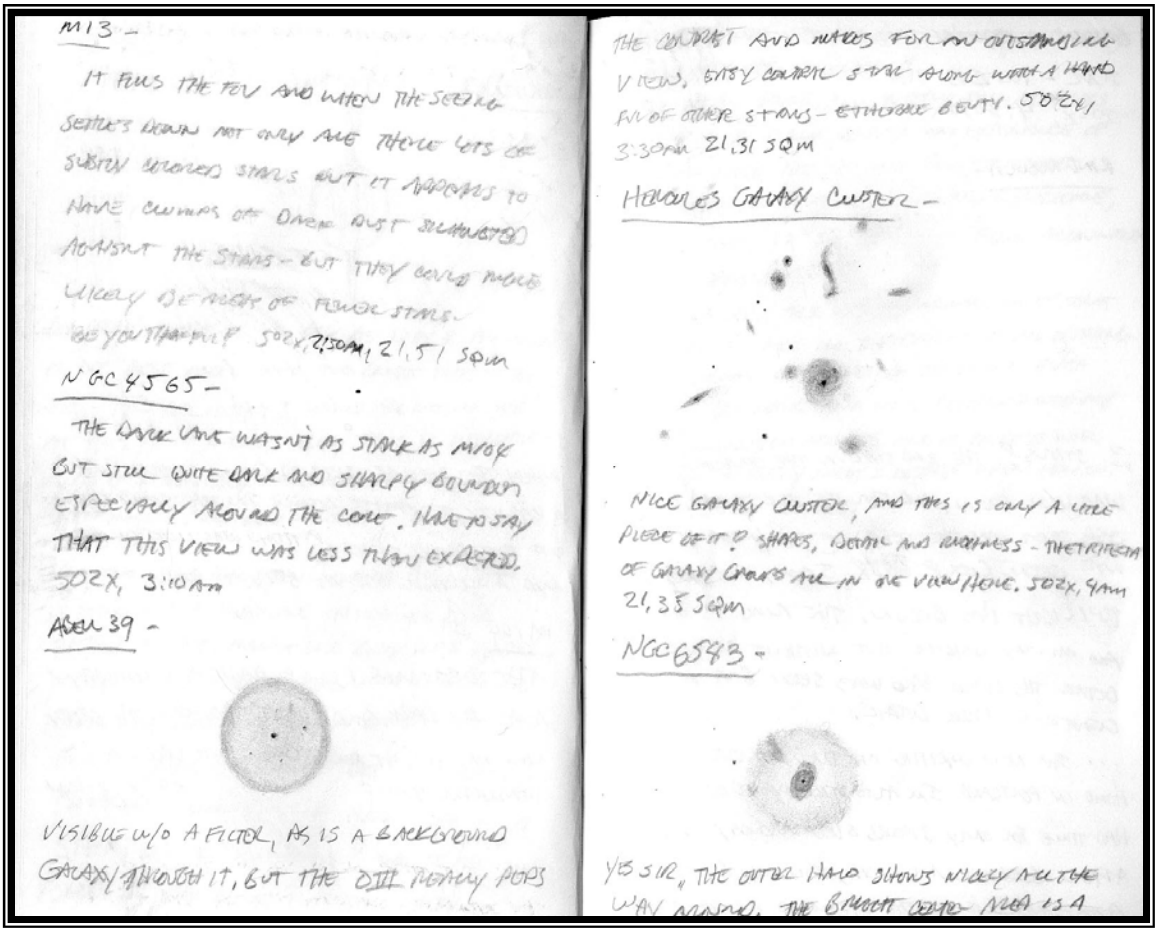
With the OIII filter in place – now we're talking! The contrast boost was way more than I've gotten on this object through my own scopes and the view became almost as detailed as the small photograph here.

The outer rim had a sharply defined perimeter and formed an almost perfect thin ring that was nearly as well defined along its inner edge. The inner area of the planetary was full of a uniformly bright nebulosity with no detail other than the central star and a couple other foreground or background stars. Best of all the planetary fit nicely within the field of view so we could enjoy it all in one glance.

Hercules Galaxy Cluster, Abell 2151
4am, 21.35 SQM, 502x
This was the object Joe most wanted to see and he lobbied hard to have the scope pointed at it while it was in the vicinity. I'm glad he did because I'm an aficionado of galaxy clusters too and the view was deeply satisfying.

Even though the Double Quasar is much further away, the first look at the center of the Hercules Galaxy Cluster really felt like I was looking much further across the universe. The small field of view at 502x was full of galaxies – 13 of them in the small field that the 90 inch scope settled on – and many of them had definite shapes.

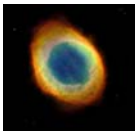
More than that, the dynamism of the scene fired my imagination – I could practically feel these galaxies interacting gravitationally - and it still has me contemplating the immensity of the universe. Our group had dwindled down to five at this point and this is the one sketch I made while at the eyepiece.



NGC 6543
4:30am, No SQM reading, 502x
Unfortunately, the seeing wasn't steady enough to zero in on the intricate detail within the brighter part of the Cats Eye Nebula, which was what I had hoped to see. However, the outer halo was rather obvious all the way around and the brightest part, IC 4677 was shaped rather like a check mark. Pretty darn cool.

The perimeter of the halo wasn't round but more like an ill-defined hexagon. The edge was rather distinct with several brighter knots as shown in the sketch. The interior of the halo was slightly brighter than the outside but it seemed to fade as it neared the bright central part of the Cat's Eye.

The central part of the Cats Eye was a saturated turquoise color even at 502x and the central star was blazingly bright. I can imagine this would all be a mind blowing view when the seeing is dead solid perfect. Just like Abell 39, NGC 6543 and its outer halo fit well within the field of view.



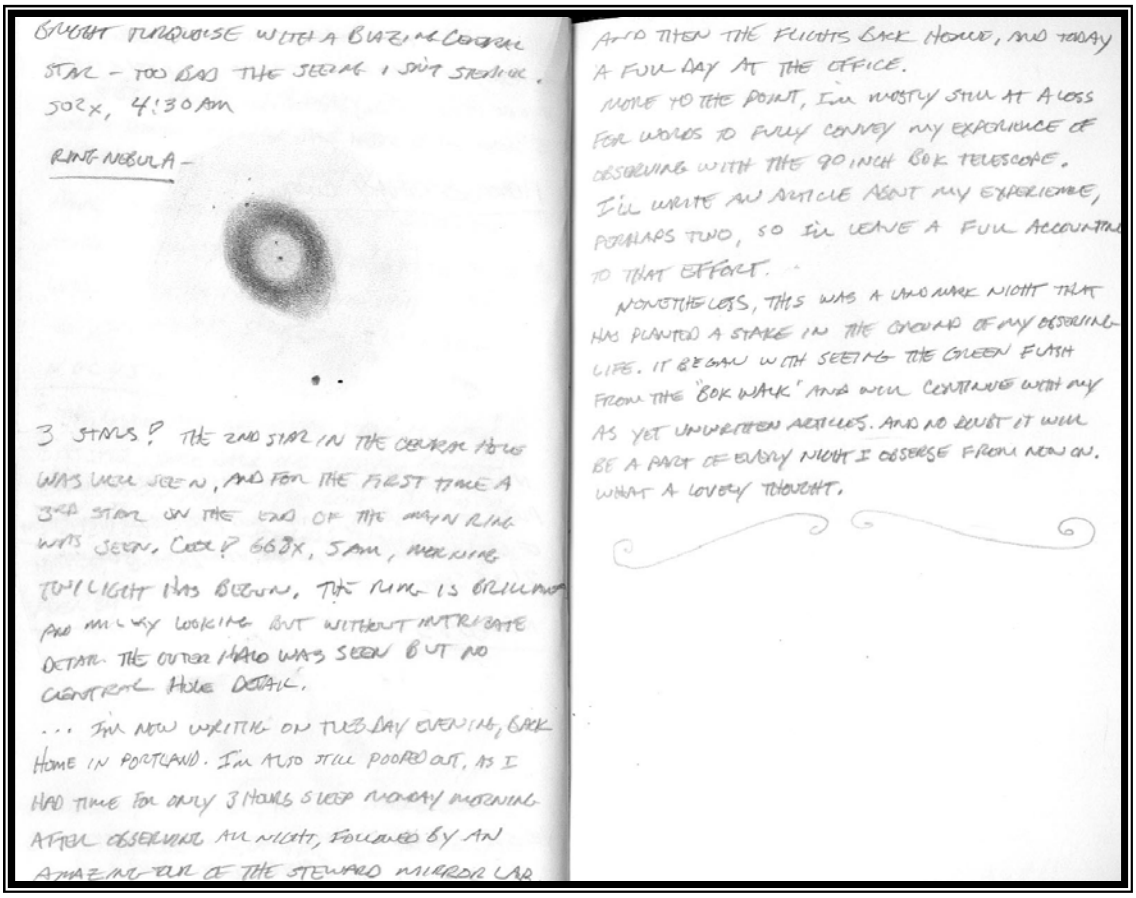
Ring Nebula
5am, No SQM reading, 663x
We had the scope moved to the Cassiopeia A supernova remnant, but it left the back end of the scope too high for the XYZ observing platform to reach the eyepiece, so we decided to end the evening with the Ring Nebula instead. This turned out to be a great choice.

Not only do I love the Ring Nebula – what amateur astronomer doesn't – but I've been on a nearly life long quest to see as many stars within or superimposed on the Ring as possible. Needless to say this would be my best chance.

How many did I see? Three stars! The second star in the central hole was well seen along with the blue central star, and for the first time I saw a third star within one end of the main ring. There were even three faint stars just off the same end of the Ring. Joe was as excited as I was to see the third star.

Even though morning twilight was in its beginning stages the Ring was brilliantly bright and had an overall milky texture that lacked any intricate detail. The outer halo was detected even though the sky was brightening, but no detail was seen in the central hole even with the OIII filter.

I think I had three looks - and then suddenly the sky was too bright to continue and this incredible night of observing was finished. Rats.


BRIGHT TURQUOISE WITH A BLAZING CENTRAL STAR – TOO BAD THE SEEING I SUCK STEWARD. 502x, 4:30 AM

RING NEBULA –

3 STARS? THE 2ND STAR IN THE CENTRAL HOLE WAS WELL SEEN, AND FOR THE FIRST TIME A 3RD STAR ON THE END OF THE MAIN RING WAS SEEN. COOL? 663x, 5AM, MORNING TWILIGHT HAS BEGUN, THE RING IS BRILLIANT AND MILKY LOOKING BUT WITHOUT INTRICATE DETAIL. THE OUTER HALO WAS SEEN BUT NO CENTRAL HOLE DETAIL.

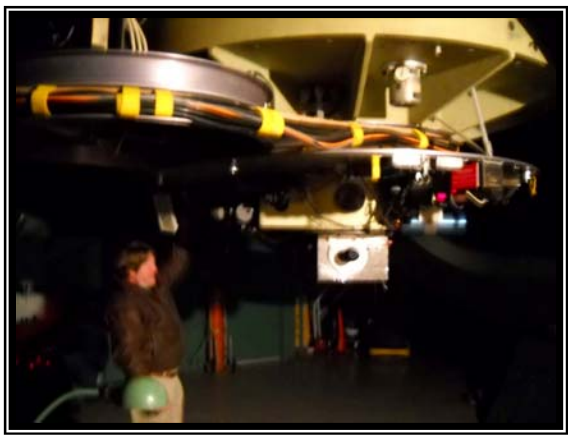
... I'M NOW WRITING ON TUESDAY EVENING, BACK HOME IN PORTLAND. I'M ALSO STILL POOPED OUT, AS I HAD TIME FOR ONLY 3 HOURS SLEEP MONDAY MORNING AFTER OBSERVING ALL NIGHT, FOLLOWED BY AN AMAZING TOUR OF THE STEWARD MIRROR LAB AND THEN THE FLIGHTS BACK HOME, AND TODAY A FULL DAY AT THE OFFICE.

MORE TO THE POINT, I'M MOSTLY STILL AT A LOSS FOR WORDS TO FULLY CONVEY MY EXPERIENCE OF OBSERVING WITH THE 90 INCH BOK TELESCOPE. I'LL WRITE AN ARTICLE ABOUT MY EXPERIENCE, PERHAPS TWO, SO I'LL LEAVE A FULL ACCOUNTING TO THAT EFFORT.

NONETHELESS, THIS WAS A LANDMARK NIGHT THAT HAS PLANTED A STAKE IN THE GROUND OF MY OBSERVING LIFE. IT BEGAN WITH SEEING THE GREEN FLASH FROM THE "BOK WALK" AND WILL CONTINUE WITH MY AS YET UNWRITTEN ARTICLES. AND NO DOUBT IT WILL BE A PART OF EVERY NIGHT I OBSERVE FROM NOW ON. WHAT A LOVELY THOUGHT.

Before heading down to our dorm rooms or back to Tucson, as a few of us did, we first we cleaned up the observing area, gave our thanks to Dennis and bundled up everything into the elevator and headed back to the real world.
Well, not quite. After a few hours sleep several of us met back in Tucson at the University of Arizona for a tour of the Steward Observatory Mirror Lab. It's like I imagined the 21st century would be like when I was a kid, but this is a story for another time…

So, how to sum up this night with the 90 inch? We each had our own experience observing with the Bok Telescope, so I can only address my own.



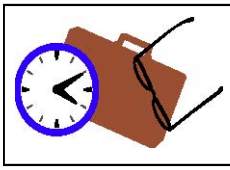
First of all, I fully expected to have a serious flare up of aperture fever, but to my great surprise and relief my symptoms are no more serious than before.

As I've thought about it, a 90 inch scope is so far beyond what I'm ever going to be able to afford that there's no hope of approaching these types of views through a scope I could conceivably own. My dear wife Judy is also quite relieved.

I'm also suffused with a feeling of great good fortune. How did I get so lucky? Right place at the right time, and I'll always be grateful. For all I know this will be my only chance to observe through such a large instrument.

However, the deepest impression from this landmark night is that it planted a flag in the ground of my life as an amateur astronomer. It was a revelation of what can be seen with the human eye and a really big telescope, and it will no doubt echo into every night I observe from now on, flavoring each future observation. And that strikes me as a particularly lovely thought.

From left to right – the author, Tom Osypowski and Dan Gray posing by the 90 inch cement mirror marker in front of the observatory.



BOARD MEETING MINUTES

May 3rd, 2010 7pm
OMSI Classroom 1
Duncan Kitchin

Chair : Sameer Ruiwale
Secretary : Duncan Kitchin

Board Members Present

Sameer Ruiwale (President)
Ken Hose (VP Membership)
Larry Godsey (Treasurer, Webmaster, Magazine Sales
Matt Brewster (VP Programming)
Duncan Kitchin (Secretary)
Larry Froberg (Sales Director)
Diana Fredlund (Media Director)
Howard Knytych (New Member Advisor)
Dale Fenske (ALCOR, Historian)
Greg Rohde (Telescope Library)
David Nemo (Observing Site Director)
Scott Kindt (Special Interest Groups Director)

Call to Order

The meeting was called to order at 7:08pm by Sameer Ruiwale and, there being 10 of board members present, the quorum requirement of 10 was declared to be met.

Approval of Agenda

Motion to approve the agenda. Approved by unanimous consent.

Approval of Minutes

Moved: Approve minutes from the April 2010 board meeting. Move: Duncan Second: Sameer. Approved 10-0-0.

Directors' Reports

Secretary's Report – Duncan Kitchin: Nominal.
Treasurer's Report – Larry Godsey: Larry has passed around profit and loss year to date. One bill (Maupin) not yet received. Everything on track so far, and tracking slightly under budget. On the back there is a detail profit and loss for last month. The balance sheet also distributed, is available on the website, as is a new page that shows the detailed profit and loss on each month for this year. Also provided are detailed expenditure and income statements. Just over $4000 spent so far versus budget of $7000, but there is a bill coming up for OMNIMAX of $450, and there are a couple of checks to be written to cover speakers. Matt Brewster will send details to Larry. AR: Sameer to check with Jim Todd about costs for OMNIMAX.
VP Programming – Matt Brewster: OMNIMAX presentation in May. Will be free for RCA members and meeting attendees. Will be first come first served due to seating limitation of 300. We will be setting up tables in the hallway leading to the OMNIMAX. Doors will open at 7pm. At 7:30 we will have announcements, but there will be no presentation projector available, so announcements will be verbal only. The OMNIMAX show will start at 8pm. June is the information fair, with tables set out for SIGs and also a swap meet. Tables will be set out in the center of the auditorium for swap meet, and at the sides for SIGs. This layout has been used successfully before. Jim's suggestion that next year the swap meet and information fair should be moved to May, since it is generally difficult to book the auditorium in June and the planetarium is not suitable for this type of meeting. Question from Matt – how will we present the SIGs? Matt would like to have SIG directors each make a very brief announcement to let the new members aware of their existence and what they do. In addition, there are some other groups such as new members that it might be useful to announce. Concerns were expressed about the length of time given the number of announcements to be made. Proposed that instead, Sameer will make a brief announcement on behalf of each of the groups.
VP Observing – Matt Vartanian: Not present.
VP Community Affairs – Dawn Willard: Not present.
Media Director – Diana Fredlund: What kind of announcement should we make for the June swap meet? AR: Sameer to send Diana the announcement from last year's swap meet to use as a basis. Diana does not have information from Dawn Nilson yet on dark skies initiative. Dawn was looking for information on Marylhurst College presentation on dark skies to potentially arrange participation for the Think Out Loud programming. Expectation is that Think Out Loud will already be booked for the rest of this month. Looking for information for article for 12" rebuild Dobsonian. Greg Rohde volunteered to assist in composing the article.
VP Membership – Ken Hose: Last month had 3 new members, 5 renewals, total of 344 member families compared to 328 at this time last year and 305 this time the year before, so membership continues to increase. Brought in total of $221 in dues last month. Approximately 30% of transactions were via PayPal.
New Member Advisor – Howard Knytych: Will do short new members meeting this month to allow for OMNIMAX. Social dimensions in astronomy; objective is to give members an orientation of the different directions in which they might want to go.
Sales – Larry Froberg: Merchandise sales up slightly to $183. Skytools sales: have collected $2160, still have 8 people left to claim Skytools and send payment. Announcement made about follow on orders, but have not yet received any responses. Backup positions: Larry has spoken to Beverly Floyd, she is prepared to take on that role if necessary. Larry has forwarded the spreadsheet that he uses to Beverly so that she is ready to step in as necessary.
Book Library – Jan Keiski: Kudos to Chris Steinkamp, library research assistant, for her diligent work updating library materials database, as well as sending electronic reminders out for overdue books.
Telescope Library – Greg Rohde: Took in one donation last month; a 60mm refractor. Scott Kindt will be taking over

(Continued on page 19)

(Continued from page 18)
management of the telescope library for the next few weeks due to Greg being out of state for a business commitment. For the OMNIMAX meeting in May, will make announcement for anybody who wishes to make a return, will not set up table due to logistical constraints.
IDA – Dawn Nilson: Seattle astronomical society is petitioning the city of Seattle asking them to prevent the use of LED lighting. This needs to be researched to determine impacts.
Magazine Subscriptions – Larry Godsey: Nominal.
Webmaster – Larry Godsey: Nominal.
Site Committee – David Nemo: Nominal.
Youth Director: Jean London: Not present.
SIGs – Scott Kindt: Nominal.
Alcor – Dale Fenske: 344 members will be indicated to astronomical league for purposes of Reflector subscriptions
OMSI –Jan Keiski: Nominal.
Sister Club update – Jan Keiski: GAMA, our sister club in Mendoza, Argentina, contiues to add new members. Entering in to the winter months for them, but they still have star parties each month. The weather may be cold, but viewing in April was spectacular according to Leo Cavagnaro, VP of Observing for GAMA.
Newsletter Editor – Scott Kindt: Scott .There are a few ideas for articles for the upcoming newsletter. Reports and pictures for upcoming star parties.

Old Business

OMSI panel damage insurance update – Larry Godsey. Taken care of – insurance will cover entirely ($750). Check sent to OMSI. Electronic panel in lectern has now been moved by OMSI to ensure that this kind of damage cannot happen again.
Article in newsletter for 2009 RCA activities / accomplishments – Sameer Ruiwale. Not yet finished.
Update on calendar printing costs from vendor – Greg Rohde. Greg has supplied Larry Froberg with some sample calendars and the printing company brochures. There are two possible different sizes. $6 for small size in 100 quantities. Discussion as to whether we can sell 100 copies. Given the lower pricing from prior calendars, this seems to be feasible. Will also investigate alternate vendors to compare pricing. Need to have materials to send to printers early September, will have calendars back from printers for November meeting. Diana will help with cost estimates. Duncan will make announcement at imaging SIG meeting requesting images to be sent to Greg Rohde. Would be good to get images from this year. May need meeting immediately prior to deadline to select images. Suggest late August. Week of 23rd? Will discuss on forum. AR: set up additional sub group on forum.
Update on adding Stub-Stewart RCA only star-parties to 2010 schedule – Matt Vartanian. No report. Need a volunteer to complete next year's star party schedule. Need this finalized by September 1st, but needs additional formatting work so will need final dates at August board meeting.
Create Mirror Making Machine usage instructions – David Nemo / Greg Rohde. Will leave this off list for time being.
Update about Stub Stewart parking bumpers tape project - Greg Rohde. No progress due to inclement weather.
Submit an article for the website on the refurbished 12.5" library scope – Margaret Campbell. Already discussed.
Update on proposal for "Think out loud" radio show – Diana Fredlund. Already discussed.
Send the name of the Hillsboro Commissioner who might want to be on the *Think Out Loud* program to Diana Fredlund - Greg Rohde. Greg still trying to track down the appropriate person.
DONE - Update on putting together Gazette binder of past issues at Library – Jan Keiski
Tabled - Proposal on adding imaging equipment to Telescope Library – Matt Brewster. There are some ideas on how to proceed with this, but we will remove this item from the agenda for now.
Kah-Nee-Ta commitment: we were able to cover our commitment for room bookings, so there is no budgetary impact. Matt requests sending appreciation to organizer at Kah-Nee-Ta. Larry Godsey will organize.
Howard volunteered to propose star party schedule for 2011.

New Business

Vote on Scott Kindt as Newsletter Editor. Larry Godsey moves, Duncan seconds. Approved by unanimous consent.

2010-2011 Budget Review – Round #2 – review currently proposed budget. Larry Godsey presented budget. Currently running within budget for this year. Proposed budget for next year is shown to balance at $8000 income and $8000 expenditures. Expecting higher income for next year due to increased membership. Budget does not need to be voted on until next month, so board members are requested to provide any inputs to Larry. Hancock and magazines are not listed as items because both are expected to balance income and expenditure.

Starlight parade budget increase request for T-shirt purchase – Sameer. Not over budget at this point; $750 budget, $250 of which is for application. Of remainder about half spent. Would like an increase in the budget to buy starlight parade t-shirts. Minimum order of 36 at cost of $8 each. Suggestion to combine with orders of t-shirts for sales table. Requests of additional $150 to cover costs of t-shirt. Larry Godsey moves to add $200 to starlight parade budget. Scott Kindt seconds. Motion passed by unanimous consent.

June General Meeting – Info Fair and Swap Meet – logistics. Already discussed.

AR: Sameer to send information fair flyer to Diana, Scott Kindt and Larry Godsey

OMSI astronomy day is June 19th. AR: Diana will coordinate Pioneer place mall booking. Will plan to set up some tables indoors and will look into setting up a solar telescope outdoors on the sidewalk.

Adjournment

There being no further business, the meeting was adjourned at 8:50pm.

July 2010

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

August 2010

August 2	Monday	Board Meeting	OMSI Parker Room	7pm
August 6	Friday	Downtowner's Luncheon	Kell's	Noon
August 6-8	Friday-Sunday	Maupin Star Party	Wapanita Airstrip near Maupin	
August 9	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
August 11-15	Wed-Sun	Oregon Star Party	Indian Trail Spring	
August 12	Thursday	OMSI Star Party	Stub Steward & Rooster Rock State Parks	7pm
August 12-15	Thurs-Sun	Table Mtn. Star Party	Table Mtn. near Ellensburg, WA	
August 16	**Monday**	**General Meeting**	**OMSI Planetarium**	**7:30pm**
August 18	Wednesday	Cosmology SIG	Linus Pauling Center	7pm
August 28	Saturday	Telescope Workshop	Swan Island	10am-3pm
August 28	Saturday	Science SIG	Swan Island	3pm

The RCA General Meeting falls on the third Monday of each month. We usually meet in the Auditorium at OMSI, next to the Murdock Planetarium. Occasionally the meeting is held in Murdock Planetarium. Check the RCA web site for the latest information.

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 22, Issue 8 Newsletter of the Rose City Astronomers August, 2010

RCA AUGUST 16 GENERAL MEETING

The Mystery of Dark Matter in Our Universe

Presented by Duane Ray

There is five times as much 'dark' matter as there is matter from which we, the stars and the planets are made. It's dark and we can't see it, so how do we even know it's there? What do we know of this mysterious stuff? How do we study it and what have we learned about it?

This talk will give a historical and scientific background and tell you what results to look for in the near future. Please join us in the OMSI Planetarium for this presentation.

Credit: X-ray: NASA/CXC/CfA/M.Markevitch et al.; Optical: NASA/STScI; Magellan/U.Arizona/D.Clowe et al.; Lensing Map: NASA/STScI; ESO WFI; Magellan/ U.Arizona/D.Clowe et al.

All are Welcome! Monday August 16

Social Gathering: 7 pm. General Meeting Begins: 7:30 pm.

Location: OMSI Planetarium

In This Issue:

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

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
Aug 9	Aug 16	Aug 24	Sep 1

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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 $65.95 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@rosecityastronmers.org>

RCA LIBRARY

The Rose City Astronomers main-tains 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.

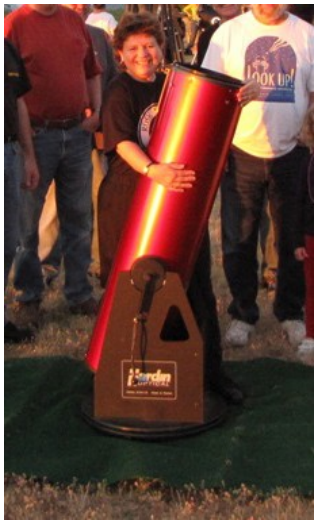
http://www.rosecityastronomers.org/library.htm

Jan Keiski <library@rosecityastronomers.org>

Local Happenings

Stolen Telescope Returned!

Back in the May issue we put out an alert for a stolen telescope. This month we are happy to report that the telescope is back in the hands of its rightful owner. There was a television news report about some stolen items that were recovered following an arrest. One of the items described was a “high end telescope” and a brief video shot of it as they panned across a room. Jan was notified by several local astronomers following the newscast. A couple of days later she was able to claim her telescope from the police just in time for the OMSI star party at Rooster Rock. Here is a photo of Jan and her astro friend “Big Red” at that star party.



Start an Astronomical League observing program tonight!

The clear skies are here for a while. Are you finding some time out under the stars? New to Astronomy? Have you ever thought, "What should I look at tonight?" A lot will depend on your interests, equipment, observing experience, location, and moon phase.

The Astronomical League offers over 30 observing programs to help in just that situation. These programs are designed to provide you with a direction and a goal for your observations. Some are designed for the novice such as Constellation Hunters, Universe Sampler, and Lunar Clubs. Other programs, including the Messier, Urban, and Planetary Observer Clubs, are better suited for intermediate observers. More experienced deep sky hunters can hone their skills with the tougher selections of the Herschel, Arp Peculiar Galaxies, and Galaxy Groups and Clusters Clubs. If you have an interest, there is a program for you!

Upon completion of each club, the observer is presented a certificate suitable for framing and a nifty lapel pin. These lists are a low stress way to enjoy the many wonders of the night sky.

Check out the links on the right to find out if one of these programs is for you! Visit the main website, www.astroleague.org/observing for listings by equipment, or observing experience level. Be sure to take note of the documentation requirements.

Let’s go observing!

Arp Peculiar Galaxy Club
Asteroid Observing Club
Binocular Messier Club
Caldwell Club
Comet Observers Club
Constellation Hunter - Northern Skies Club
Constellation Hunter - Southern Skies Club
Deep Sky Binocular Club
Double Star Club
Earth Orbiting Satellite Observing Club
Flat Galaxy Club
Galaxy Groups and Clusters Club
Galileo Club
Globular Cluster Club
Herschel 400 Club
Herschel II Club
Lunar Club
Lunar II Club
Master Observer Club
Messier Club
Meteor Club
Open Cluster Club
Outreach Club
Planetary Nebula Club
Solar System Club / Planetary Observers Club
Sky Puppy Club
Southern Sky Binocular Club
Southern Skies Telescopic Club
Sun spotters Club
Universe Sampler Club
Urban Observing Club
Variable Star Club

2011 RCA Calendar

When is the Trout Lake Star Party in 2011? If I get a telescope for my birthday will it be near the full moon? These questions and more could be answered with a 2011 RCA calendar. The calendar is in the planning stages at this time with a publication date towards the end of this year.

Camera's ready? What we need from you is your calendar worthy photos. Photos should be related in some way to astronomy and should preferably be taken within the year. Submissions are due by September 1, 2010. Please email all submissions to Greg Rohde at: telescope@rosecityastronomers.org

MAY 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, August 9th, 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: Saturday, August 28th, 3:00pm

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, September 10th, 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 20th, 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 28th, 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 18th, 7:00pm
Topic: Space-Time
Presented by: TBD

Location: Linus Pauling Complex,
3945 S.E. Hawthorne St., Portland.

SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm

MEMBERSHIP RENEWAL

It's past time to renew your membership with the Rose City Astronomers. Our membership year runs from July 1st to June 30th. If you've joined the club this year, your membership is good until June 30, 2011 as you've paid a pro-rated fee when you joined.

Dues 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. Plenty of renewal forms available also. You can 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 outside the entrance of the OMSI Planetarium or in the auditorium. 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

Maupin Star Party August 6-8

http://www.rosecityastronomers.org/sp/maupin.htm

. The Rose City Astronomers have been granted permission to use private property approximately 8 miles West of the town of Maupin for members-only scheduled Star Parties. The Maupin Observing Site is located on a private airstrip about 8 miles east of Maupin, Oregon. Warning: this airstrip is used in the morning, but at the far end of the airfield. Most people don't even wake up.

There is no registration for the event itself, just show up and enjoy the weekend. You don't even need a telescope to participate; other members are enthusiastic to share their views. This is a good opportunity for beginners to get acquainted and seasoned observers to get some serious observing. RVs, trailers and tents will be allowed on the observing site (see observing site map for instructions). The town of Maupin offers lodging, restaurants and recreation if you don't want to rough it. We will have a portable outhouse on site.

Oregon Star Party August 11-15

http://www.oregonstarparty.org/

The Oregon Star Party is an annual gathering of amateur astronomers in the darkest skies in the Pacific Northwest about 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. Attendees camp in everything from a pup tent to 40' motor homes; all are welcome.

You do not have to own a telescope to attend, as many attendees will be more than willing to offer you a view of the wonders of the night sky. There is a wide variety of speakers, activities for adults and children, vendors and of course food and espresso service well into the night or should I say well into the early morning.

Pre-registration has drawn to a close for this year. Onsite registrations will be accepted. Information, directions, registration, activities are listed on the website at http://www.oregonstarparty.org.

Continued on page 9

CLASSIC TELESCOPES

BY JOHN W. SIPLE

EXPLORE THE WONDERS OF HERCULES WITH A DYNASCOPE

Over a half century has elapsed since the introduction of the RV-6 Dynascope, yet it still remains a very popular 6-inch telescope among today's enthusiastic collectors. The rugged instrument first appeared in a two page spread in the January 1959 issue of *Sky & Telescope*, where it instantly became a phenomenal bestseller for the company. John Krewalk Sr., owner and founder of Criterion Manufacturing Co., incorporated many fine components in the Dynascope's construction. Such features included precision mirrors by UPCO and a stable, portable equatorial mounting. The classic reflector telescope enjoyed a high volume of sales for several decades, but received increasing competition from more compact models made by Celestron and Meade. In 1981, the Hartford, Connecticut firm was sold to Bushnell Co., a subsidiary of Bausch & Lomb, and by March of 1982 the last advertisement for the RV-6 had appeared. Shown on this page are a 1963 advertisement (top) and a portion adapted from the Dynascope Brochure (bottom), courtesy of Company Seven, Inc.

Known to the early Greeks as the Kneeling One, or as the Phantom, Hercules (Heracles) was the son of Zeus and the mortal woman Alcmene. The strongman is celebrated for his twelve labors, which required him to vanquish the multiheaded Lernean hydra, battle the Nemean lion, and to slay the dragon, Ladon. In honor of these and many other great deeds, Zeus placed the Grecian hero among the stars.

Ancient carvings and paintings show Hercules kneeling with one foot resting on the head of Draco. He hangs upside down in the heavens and his head, marked by the star Ras Algethi, nearly touches the head of the other giant Ophiuchus. From a bow held in his outstretched hand he has just launched an arrow, Sagitta, in the direction of Cygnus and Aquila. A more common stance in illustrated atlases has Hercules, like Orion, wielding a deadly club.

Look up on any clear, dark summer night and the Keystone of Hercules will catch your eye. This quadrilateral-shaped asterism contains M13, the premier globular cluster of northern skies. Other celestial treasures in Hercules include M92, a rival globular cluster, and the bright planetary NGC 6210, also known as the "Turtle Nebula."

Ask the average astronomy patron for their favorite classic reflector telescope, and they will inevitably choose the American-made Criterion RV-6 Dynascope, the core of 1960's instrument sales and the specific model picked by the author to explore the many wonders of Hercules.

Quite remarkable in their expertise and technique, the employees at Criterion Manufacturing Co. produced an unusually functional and distinctive 6-inch F/8.3 Newtonian reflector that gives unsurpassed views of the night sky. Considered a medium sized instrument, the lightweight and practical RV-6 Dynascope is ideal for all adult and junior amateur astronomers.

Our telescopic journey begins at M13, readily located on the western side of the Keystone about a third of the way from (Eta) η to (Zeta) ζ Herculis. Edmond Halley discovered this 6th-magnitude star cluster through a chance observation in 1714. Charles Messier, sweeping the skies for comets in the summer of 1764, independently recovered the now famous object.

Few thrills exceed that of exploring its many stars with your telescope. Tapping into the visual power of the Criterion 6-inch Dynascope reflector at 67x, M13 becomes a matted glow spangled with innumerable

The Great Globular Cluster M13 in Hercules, photographed by Richard Miller through a 10-inch F/5 Newtonian reflector telescope.

glittering points. Succumbing to the lure of one of the heaven's finest deep-sky treasures, the great globular cluster can be only described as "dazzling" and "breathtaking."

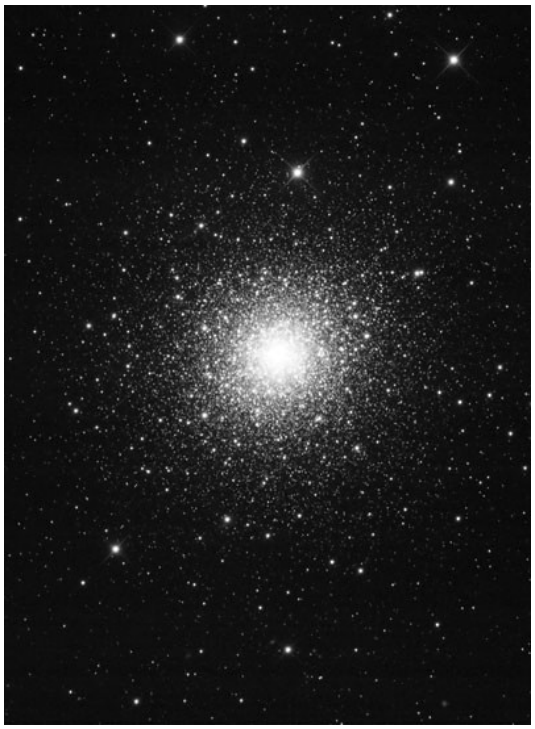
Under fine conditions individual stars are resolved all the way to M13's bright core. Most noticeable are the curvilinear streams of stars or "arms" that seem to radiate out into space from the cluster's outer edges. (Go to the last page for Leopold Trouvelot's masterful illustration.)

Whether using a large or small telescope, the luminous views and irregular symmetries invite further study. Any quality 6-inch telescope can resolve the brighter members, but amateurs equipped with 10-inch and larger backyard instruments will see countless thousands of red-hued suns, punctuated with three or four star-poor areas or "lanes."

Another of the constellation's greatest attractions is M92. Using nearby (Eta) η Herculis as a jumping off point, travel directly across the Keystone to (Pi) π Herculis, then head approximately 7° north. This Messier object shines with the total light of a 6.5-magnitude star, and can be spied by the naked eye when the sky is transparent and free of interfering city lights.

M92 seems distinctly oval, possessing a halo that measures around 8' by 7'. The outlying cluster members are best revealed in the Criterion 6-inch telescope at 97x, forming beautiful, streaming star lanes. However, the strongly concentrated 2.5' central blaze

(Continued on page 7)



Left: M92 is one of the constellation's finest showpieces, but is overshadowed by its more famous neighbor M13 lying nine degrees to the southwest. Colorado professional Matthew T. Russell sampled its distant splendor through a 16-inch RCOS Ritchey-Chretien.

Right: South is up in this photograph of NGC 6229 by Mischa Schirmer, who used a 12.5-inch reflector operating at F/5.1 to capture its combined starlight. NGC 6229 is at a distance of about 99,100 light-years, whereas M92 is 25,400 light-years away.

needs at least a 12-inch telescope for a decent view.

A short description of this Herculean gem, given by noted 19th-century English astronomer Thomas W. Webb, accurately portrays the scene through the author's reflector telescope: "A very fine cluster, though not equal to M13, less resolvable, intensely bright in centre."

A rather difficult object, on the other hand, is the magnitude 9.4 globular cluster NGC 6229. It is located 7° northwest of M92 and lies only a few arc minutes east of a pair of 7th- and 8th-magnitude stars. William Herschel, who discovered the remote cluster in 1787, mistakenly interpreted its comet like glow as a planetary nebula.

Through the 6-inch telescope at 25x, NGC 6229 is a round blur just barely distinguishable from a swollen star. High magnifications transform this swarm of suns, measuring 4.5' across, into a compact, circular nebulosity with mottled edges. The Dynascope doesn't resolve the tight core but does show a bright central region that gradually fades outward.

If you are successful in locating NGC 6229 and want to try something even more challenging, then try hunting down the galaxy NGC 6207. To get to this magnitude 11.6 island universe, it is only necessary to shift the Criterion reflector 28' northeast of M13's crowded center.

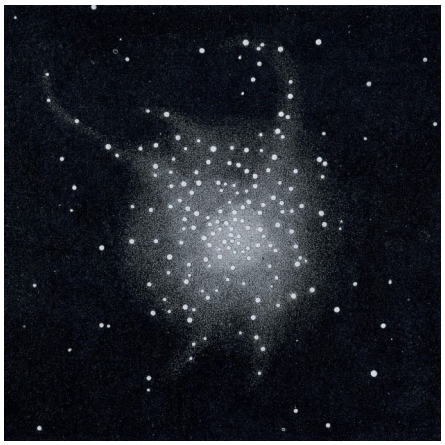
Despite a close proximity to the famous Hercules cluster most amateur astronomers do not commonly target NGC 6207, probably because of the object's relative faintness and small apparent size of 3.0' by 1.4'. Those owning large Dobsonians can easily spot its extended shape and sharply tapered ends.

At 67x in the 6-inch telescope, NGC 6207 is perceived as a lens-shaped smudge of light with a tiny, starry center. It is believed to be 46 million light-years from Earth, making

Some of the estimated one million members of Messier 13 are visible in this exposure by Anthony Ayiomamitis. To get this beautiful image, he used an Astro-Physics 6-inch F/7.5 Starfire EDF refractor from his home observatory in Athens, Greece. At the extreme left-hand edge of the frame is a 7th-magnitude star, one of a pair that forms a right triangle with M13. A good 6-inch telescope under clear skies will show many of the cluster's brightest members, while larger instruments resolve stars across its entire face. The often ignored spiral galaxy NGC 6207 is just outside of the field toward the upper left. The Great Cluster in Hercules (NGC 6205) as a linear diameter of about 145 light-years and is located approximately 25,000 light-years from us.

(Continued on page 8)

Wonders of Hercules *(Cont'd from page 7)*



M13, as drawn by Leopold Trouvelot in 1874, accurately displays the long, curving strings of stars visible through the Criterion 6-inch Dynascope reflector telescope.

this Sc-type spiral galaxy the furthest object on our list of deep-sky splendors.

Beautiful colors, differing separations, and majestic high and low power views characterize many of the double stars scattered throughout Hercules. One of the most enticing is Alpha (α) Herculis, a pair of orange and emerald green suns separated by an easy 5". The primary is a huge pulsating supergiant that varies semi-regularly in brightness, while the secondary shines steady at 5th-magnitude.

Through the 6-inch reflector at medium power the stars are a study in color, cleanly split and extraordinarily delightful. At extreme magnification the diffraction pattern dominates, showing two perfectly formed Airy disks with dark sky between.

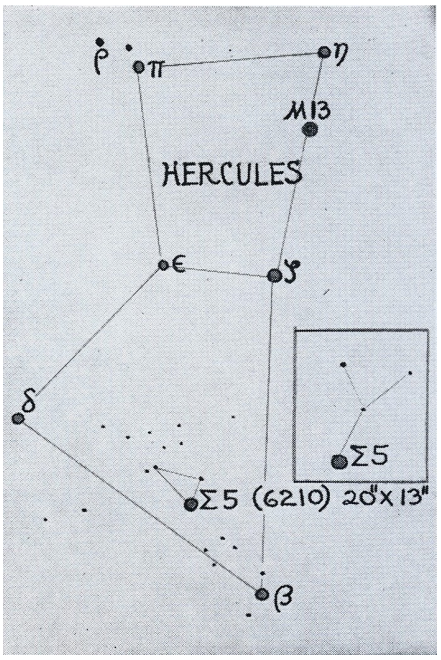
Near the northeastern corner of the Keystone is Rho (ρ) Herculis, an attractive pair of 5th- and 6th-magnitude stars split by 6". In the telescope at 181x, the major star is bluish-white while the minor member is white with a delicate shade of green.

Two other double stars lie within a reasonable distance of the Keystone. 95 Herculis is known for its amazing color contrast, described by some people as apple green and cherry red. The two components are nearly matched in brightness, magnitudes 5.0 and 5.1, and are currently 6" apart. Their tints are very intense in the 6 -inch telescope at 32x, the primary appearing pure green and the secondary a radiant yellowish-red.

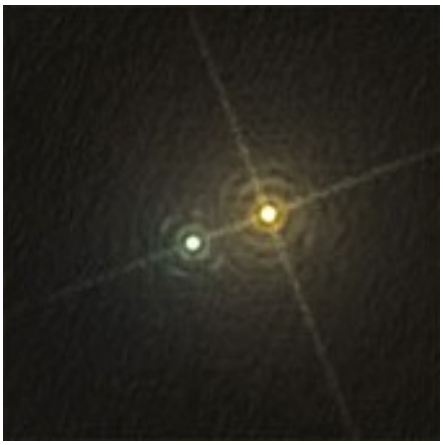
A short hop to the northwest lands the observer at Delta (δ) Herculis, an unequal optical double consisting of 3.1 and 8.7 magnitude stars separated by a wide 14". It is best seen in larger instruments, but the Criterion reflector gives a satisfactory view of the white and purple system at 97x.

NGC 6210 (Struve 5N) is the sole planetary nebula that Criterion owners can find easily in Hercules. It shines at magnitude 8.8 and is cataloged as having exaggerated dimensions of 48" by 8", but for users of medium-sized telescopes, it appears only slightly oval and about 20" by 13" across.

High resolution photographs from the Hubble Space Telescope reveal a bizarre turtle-shaped object with four flipper-like arms. According to Stephen James O'Meara, author of *Hidden Treasures*, NGC 6210 consists of "a complex mix of knots, rings, and other amorphous shapes."



Both the position of M13 and NGC 6210 are marked on this simple chart by Leland S. Copeland. The small inset diagram shows the field occupied by the Turtle Nebula.

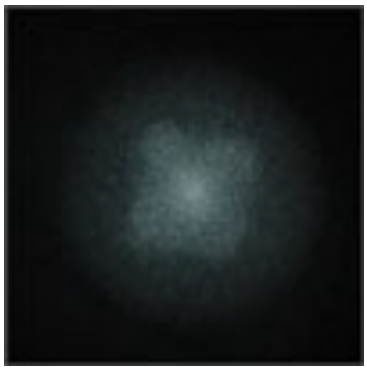


Sketched by Arizona artist Jeremy Perez, this high power view of Alpha Herculis shows the Airy disks of its two components. The primary is a semi-regular variable that fluctuates in magnitude between 3.1 and 3.9 over an approximate 90-day period.

The planetary looks stellar at 32x and has a distinctive bluish-green hue, but at an increased power of 264x displays a mottled disk full of detail. Two perpendicular but very small ellipses or stubby extensions are visible without the use of averted vision, and the Criterion telescope clearly shows a tiny, brilliant core.

Back in the 1960s, Criterion's RV-6 played a gripping role in the telescope industry, educating thousands to the wonders of the night sky. Although there are no official rules for rating astronomical telescopes, it effectively melds performance, cost (used examples currently are available for around $200-300), and durability. For those who like a mix of simplicity and proven technology, owning a Dynascope reflector is a perfect investment.

At left is a picture of NGC 6207 by Dietmar Hager. At right is another sketch by Jeremy Perez, this time showing the internal detail of NGC 6210. Studies indicate that powerful jets of hot matter are being ejected from the nucleus in at least two opposing directions, forming complex structures as they burrow into an outer, cooler shell of gas.



Skyview Acres Star Party September 3-6

http://www.rosecityastronomers.org/sp/skyview.htm

The September 3-6 Dark Sky Star Party originally planned for Maupin, will instead take place at SkyView Acres outside of Goldendale, WA.

The reason being that the RCA Board is in discussions with the property owner about some type of long-term arrangement. This is **very preliminary**, but the Board thought it would be a good idea if as many members as possible checked out the property so we could get some feedback on its pros and cons before moving forward with this. Many members have used the site over the years and report it to be quite good - and dark.

More information on the site, including directions, is now posted on our website.

Look for a new topic on the Forum after the Oregon Star Party with more information about this star party.

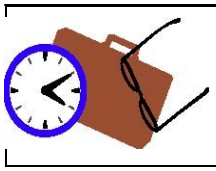
Camp Hancock October 8-10

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

Registration for the fall Camp Hancock star party opens on September 1st. Mail-in registration and payment deadline for this outing is October 1. We will be taking registrations at the September 20th meeting, or you can mail in your registration before then. The facility fee is $45 per night, per person, meals included. RV's, Camping or Bunkhouse, 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 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.

Dark skies, cabins, real bathrooms, hot showers, good meals and great friends top make this a popular outing for astronomers.



BOARD MEETING MINUTES

June 7th, 2010 7pm
OMSI Classroom 1
Duncan Kitchin

Board Members Present

Sameer Ruiwale (President)
Ken Hose (VP Membership)
Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Duncan Kitchin (Secretary)
Larry Froberg (Sales Director)
Howard Knytych (New Member Advisor)
Jan Keiski (Library Director, OMSI Liaison)
David Nemo (Observing Site Director)
Scott Kindt (S.I.G. Director, Newsletter Editor)
Jeannie London (RCA Youth Director)

Call to Order

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

Approval of Agenda

Motion to approve the agenda. Moved: Duncan. Second: Howard. Motion passes 10-0-0.

Approval of Minutes

Moved: Approve minutes from the January 2010 board meeting, with amendment proposed by Howard : Add to old business Howard volunteered to propose star party schedule for 2011. Second : Duncan motion passes 10-0-0.

Directors' Reports

- Secretary's Report – Duncan Kitchin: Quorum (10) met with 10 voting members present.

Treasurer's Report – Larry Godsey: Larry Godsey passed around P&L sheet for this year. We are within what we budgeted. Just got a bill from OMSI for $250 for last month. Matt Brewster still owes Larry Godsey a couple of bills

(Continued on page 10)

(Continued from page 9)

relating to programming events. The back of the sheet has details of P&L for last month. Site fund currently has $19,765.63. On the website the itemized list for all checks and payments, plus a monthly P&L sheet has been provided. This is per discussions at last month's meeting. If anybody has any bills, please send to Larry as soon as possible, because Larry is going to close out the books for the year on June 30th. Margaret has final accounting for starlight parade.

- VP Programming – Matt Brewster: Getting ready for the information fair this month. Layout has been set up, needs to work on signs. Sameer – can we send out a broadcast message for the swap meet? This will be held at the same time and people need to get ready. Following month, we have Richard Brenne speaking about anthro-Earth, issues such as light pollution. Scott – can Matt send a short paragraph for the newsletter? Need by the end of the week.

- VP Observing – Matt Vartanian: White River star party this weekend. Some members would prefer to go to Maupin. Some people feel that having two star parties results in dilution. Discussion: we have done multiple events on many times, and it doesn't seem to be a problem. Can we have a standing Maupin star party in the future? Need to talk about this when we do the calendar, which we need to have ready by July. Matt Vartanian will make an announcement for this weekend at Maupin.

- VP Community Affairs – Dawn Willard: Not present.

- Media Director – Diana Fredlund: Not present. Diana is moving to Washington DC for a year, so we will need to find an alternate board member.

- VP Membership – Ken Hose: 10 new members, 24 renewals, bringing the total to 358 member families. Brought in $938 in dues this month. This time last year, membership was at 333, and the year before that at 305, so we continue to track upwards year over year.

- New Member Advisor – Howard Knytych: Meeting last month just before general meeting, 15-20 people present. Howard gave a PowerPoint presentation on different things that new members could specialize in. Next month will be another presentation. Howard will also set up a table for the information fair this month. Will coordinate with Ken Hose to have a common table.

- Sales – Larry Froberg: Did not have sales table set up last month due to the OMNIMAX movie, but did sell 5 copies of skytools 3 at last general meeting, for total of $475. There were 3 copies left from the prior bulk order, expecting checks from 2 people, leaving 1 copy. Having not heard from the person who originally ordered it, after several attempts to contact them, Larry has now sold that copy to another member.

- Book Library – Jan Keiski: Will have small book sale at the information fair this month. Also have a number of telescope items that Larry Deal's widow would like to sell to a good home. Will see if it is possible to bring them to the June meeting. Jan will write back and ask if she would like to come, or can send somebody.

- Telescope Library – (Greg Rohde): Scott covering. Couple of PSTs came back. One of them may have an issue with the front objective lens. This will need to be sent for repair.

- IDA – Dawn Nilson: Not present.

- Magazine Subscriptions – Larry Godsey: Nominal.

- Webmaster – Larry Godsey: Trial calendar on the website for 2011. Has moon phases, SIG dates and some of meeting dates based on historical data.

- Site Committee – David Nemo: Already covered in earlier discussion.

- Youth Director – Jean London: Has been doing youth meetings during general meetings for the last year, served 21 students, many of whom were in and out a few times. The rest were in on a regular basis. 2 certificates are being pursued for children: star puppies and universe sampler. Pushing to see if these can be completed. Scheduled during June and July, trying to ensure that everybody has paperwork in by the September general meeting, so that certificates can be ready for December general meeting. Jean feels that it is difficult to continue for the next year doing the same thing if consistency of attendance cannot be improved. Goal for the fall is to try to secure greater commitment from attendees, by getting them to register and possibly paying a nominal fee just as a means to get some stability in attendance at the program. Otherwise may reconfigure plan, possibly to have several sessions on consecutive Saturdays to increase completion rate. Ken will send Jean a list of emails that would be suitable for the purpose of sending an announcement to raise awareness of the program. Sameer will add discussion of the youth program as a new business agenda item for next month. Jean will bring several proposals for discussion.

- SIGs – Scott Kindt: Nominal.

- Alcor – Dale Fenske: Nor present.

- OMSI – Jan Keiski: Jim Todd June 19th is astronomy day. June 21st confirming use of auditorium for information fair.

- Sister Club update – Jan Keiski: Winter in southern hemisphere, but GAMA is still holding star parties; weather is dry even though it is cold.

Old Business

Update on calendar printing costs from vendor – Greg Rohde. Report from Diana via Sameer: has checked on lead time and pricing from multiple vendors. $5.50 pricing with 3-4 week turnaround. Sameer is also checking with another vendor, awaiting a reply. Need to finalize a vendor, and determine what the picture resolution will be; this information is important for imagers to submit pictures.

Update on 2011 Star Party Schedule – Howard Knytych. Already discussed; driver for schedule is calendar printing. First checkpoint is July. Need to verify dates for Hancock from OMSI.

Setup of sub-forum for 2011 RCA Calendars – David Nemo / Larry Godsey. Agreed that this is not really necessary; we will start a thread on one of the existing forums instead.

Update about Stub Stewart parking bumpers tape project - Greg Rohde. No updates. Will remove this item from the list for the time being.

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Submit an article for the website on the refurbished 12.5" library scope – Margaret Campbell. Will remove from the list.

Update on proposal for "Think out loud" radio show – Diana Fredlund / Margaret Campbell. No updates.

Send the name of the Hillsboro Commissioner who might want to be on the *Think Out Loud* program to Diana Fredlund - Greg Rohde. Will remove this item from the list.

Article in newsletter for 2009 RCA activities / accomplishments – Sameer Ruiwale. Will remove this from the list.

Sameer to check with Jim Todd about costs for OMNIMAX. Cost originally stated at $1.50 per person, and the event was attended by 200 people. Jim Todd has sent a bill for $250; OMSI gave us a very good price for this event.

DONE: Sameer to send information fair flyer to Diana, Scott Kindt and Larry Godsey

TABLED: Proposal on adding imaging equipment to Telescope Library – Matt Brewster

TABLED: Create Mirror Making Machine usage instructions – David Nemo / Greg Rohde

DROP: Update on adding Stub-Stewart RCA only star-parties to 2010 schedule – Matt Vartanian

New Business

NEW – Guest - Greg Marshall request to bring proposal for observing site to the board. Recognizes that we are not accumulating funds at the rate at which we would like, but we have a good opportunity because land prices are very depressed right now. Very difficult to just get substantial donations from people for this purpose, because we don't know how long it will be before we are able to get a site, or what the location might be. Proposal that the board creates a partnership, and select a site moderately dark at a moderate distance, with a budget of less than $100k. Then solicit investments in the range of $5K or $10k. Suggest that RCA not be a majority holder, but have some level of ownership. Nothing would be able to happen until a site was selected and agreed upon by all of the investors. All investors need to be involved in selecting a site. Shares in partnership would be tradable, although participants would be primarily be expected to be interested in ownership for astronomy purposes. Long term growth potential in value of property. One idea is that investors would have unrestricted access, whereas general membership would only have access during scheduled star parties. Alternatively, investors might have access to particular restricted areas, and may be able to construct a pier or some other structure. Might be good for RCA board to have some super voting rights. Partnership bylaws might need to have rules on sale of land requiring supermajority. Might be a significant legal cost to create a partnership. David Nemo: issue is finding property, unless it is a large parcel in the region of 80 acres. This would be too big unless we were to buy such a parcel and subdivide it, which may be possible. Agrees that it is difficult to get donations right now because we don't know of a particular site. There are other clubs that have done things similar to what is being proposed, not necessarily with sub-lots owned by major investors, but possibly with leased plots. Sameer favors the variant of having some special lots set aside for investors, and thinks that restricting usage dates by general membership is not in line with the clubs' goals. This is generally agreed. Need to see more details on the proposal. David Nemo will conduct a survey of the membership to determine how many people would be prepared to make an investment in the range being considered, so that we can determine whether this plan will be viable.

2010-2011 Budget Review – Round #3 – Vote on final budget. Detailed budget presented by Larry. There remains a question mark over insurance due to the holding of overnight star parties. Details of the final budget have been available for the last month, and no further comments have been received. Budget is a couple of thousand dollars less than last year; have kept spending well controlled in the last year. Motion to accept the proposed budget. Moved: Larry Godsey. Second: Matt Brewster. Discussion: Howard notes that the telescope library budget is much smaller than last year. Explained that this is due to a couple of large purchases last year which were not typical, and also budget was made available last year to buy equipment from Sean's Astronomy Shop when it went out of business. Also, starlight parade budget is reduced from last year. This is because of purchases of banners and other items last year which are not expected to be typical. Larry Froberg: youth group reduced considerably. Should we consider increasing this? Can increase budget later if the need arises; no specific expenditures currently identified. Starlight parade is a major expense (3rd largest). Sameer - does the board feel that this is acceptable? Discussion – expands our recognition considerably. Difficult to quantify, but our membership is constantly tracking upwards, due to the various outreach activities of which this is a part. Consensus is that this is a good investment for the exposure that it gives us. Motion passes 11-0-0.

June General Meeting – Info Fair and Swap Meet – logistics. Already discussed. Everything is in place. David will do a 10 minute night sky presentation.

Astronomy Day / OMSI celebration (June 19th) logistics. Will be running this at OMSI, will also run star parties at Stub Stewart and Rooster Rock, but do not plan to arrange a display at Pioneer place.

Starlight parade report : This event went extremely well, the float looked really great and the club gained a lot of exposure including an appearance on local television. There are already some pictures up on the website, and Greg Marshall has many more that he can provide, plus a recording of the TV broadcast.

Currently open Board positions. Diana will be resigning from the board due to moving to a new job, and we will need to find a replacement.

Adjournment

There being no further business, the meeting was adjourned at 9:50pm.

August 2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	**2** Board Meeting OMSI Parker Room 7pm Third Quarter Moon	**3**	**4**	**5**	**6** Downtowners Luncheon Kell's Noon Maupin Star Party	**7** Maupin Star Party
8 Maupin Star Party	**9** Astro Imaging SIG Beaverton Library 7pm New Moon	**10**	**11** Oregon Star Party	**12** Oregon Star Party OMSI Star Party Rooster Rock and Stub Stewart	**13** Oregon Star Party	**14** Oregon Star Party
15 Oregon Star Party	**16** First Quarter Moon General Meeting OMSI Planetarium 7:30pm	**17**	**18** Cosmology SIG Linus Pauling Cntr 7pm	**19**	**20**	**21**
22	**23**	**24** Full Moon	**25**	**26**	**27**	**28** Telescope Workshop 10am - 3pm Science SIG 3pm
29	**30**	**31**				

September 2010

September 3-5	Friday-Sunday	Skyview Acres Star Party	Skyview Acres near Goldendale WA	
September 10	Friday	Downtowner's Luncheon	Kell's	Noon
September 11	Saturday	OMSI Star Party	Rooster Rock and Stubb Stewart State Parks	
September 13	Monday	Board Meeting	OMSI Parker Room	7pm
September 13	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
September 20	**Monday**	**General Meeting**	**OMSI Auditorium**	**7:30pm**
September 22	Wednesday	Cosmology SIG	Linus Pauling Center	7pm
September 25	Saturday	Telescope Workshop	Swan Island	10am-3pm
September 25	Saturday	Science SIG	Swan Island	3pm

The RCA General Meeting falls on the third Monday of each month. We usually meet in the Auditorium at OMSI, next to the Murdock Planetarium. Occasionally the meeting is held in Murdock Planetarium. Check the RCA web site for the latest information.

http://www.rosecityastronomers.org

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

The
Rosette Gazette

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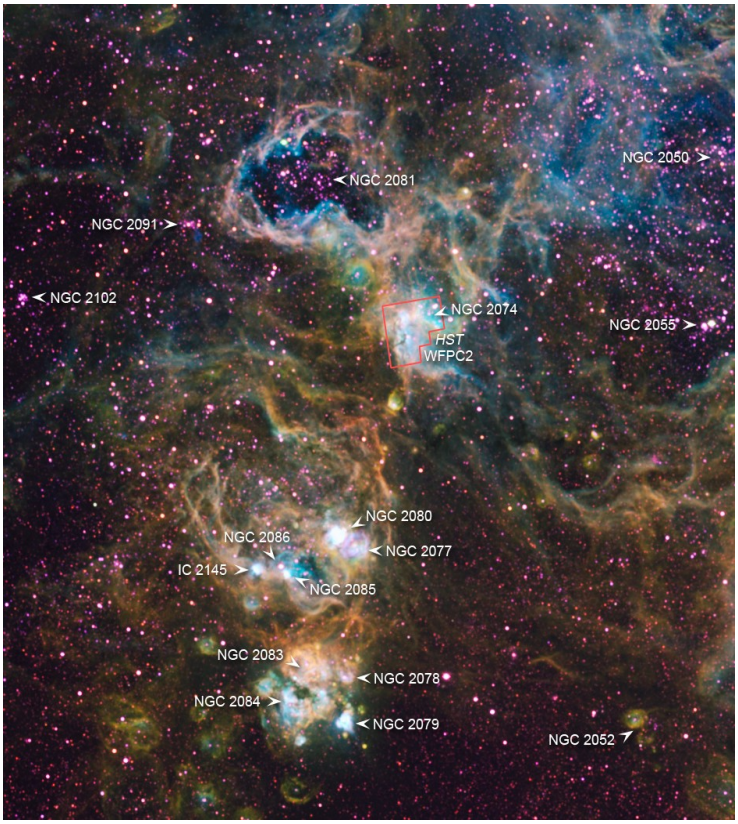
RCA MONDAY SEPTEMBER 20 GENERAL MEETING

"The Southern Sky - Treasures in the Magellanic Clouds"

By Leonardo Cavagnaro

Argentinean resident and GAMA sister-astronomy -club member, Leo, will introduce us to the galactic satellites of the Milky Way, the Large and Small Magellanic Clouds where nebulae and complex and interesting structures reside, making these deep sky objects famous for observers in the southern hemisphere. Also, he will provide brief commentary about galaxy clusters in the Great Attractor region.

Join the Rose City Astronomers September general meeting for a tour of the spring and summer southern sky, and embrace this connection with our South American sky-gazing compatriots.



The region surrounding NGC 2074 in the Large Magellanic Cloud.
Credit: UM/CTIO MCELS Project/NOAO/AURA/NSF

All are Welcome! Monday September 20

Social Gathering: 7 pm. General Meeting Begins: 7:30 pm.

Location: OMSI Planetarium

In This Issue:

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

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
Sep 8	Sep 15	Sep 23	Sep 30

CLUB OFFICERS

Office	Name	Email
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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	Matt Brewster	communications@rosecityastronomers.org
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Secretary	Duncan Kitchin	secretary@rosecityastronomers.org
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Telescope Director	Greg Rohde	telescope@rosecityastronomers.org
Observing Site Director	David Nemo	sitefund@rosecityastronomers.org
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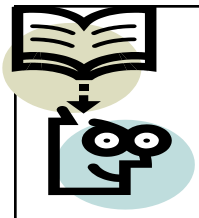
SIG Director	Scott Kindt	sigs@rosecityastronomers.org
Youth Programs Director	Jeannie London	youth@rosecityastronomers.org
Sister Club Liaison	Jan Keiski	sisterclubs@rosecityastronomers.org

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 $65.95 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@rosecityastronmers.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>

Local Happenings

MEMBERSHIP RENEWAL

It's past time to renew your membership with the Rose City Astronomers. Our membership year runs from July 1st to June 30th. If you've joined the club this year, your membership is good until June 30, 2011 as you've paid a pro-rated fee when you joined.

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). Plenty of renewal forms available also. You can pay online, via PayPal, with debit or credit card at http://www.rosecityastronomers.org/pp/renew.htm (note that there is a $1 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 outside the entrance of the OMSI Planetarium or in the auditorium. Checks or cash are accepted at the general meeting. We're ready to receive your renewal and answer any questions, too!

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

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2011 Starlight Parade
Float Design Contest

Rose City Astronomers have entered a float in the Starlight Parade two years in a row, 2009 – 2010, and we would like to make a particularly nice entry for 2011.

We are offering a contest for RCA members to design a parade float. Entries will be solicited until the November, 2010 general club meeting. The winning design will be announced at the December, 2010 potluck dinner.

Designs should be submitted on paper, as a drawing, and include written explanations. Your entry in the contest should include:

1. a proposed theme,
2. a proposed design and
3. a proposed construction plan.

Be sure to include your name and contact information.

The requirements for the float design are a mix of Rose Festival requirements and our own. These requirements are posted on the Forum.

The winner of the contest receives the following prizes:

- ☆ Their name will be included in the script that is delivered by the announcers as the float passes the grandstand.
- ☆ They may ride the float in the parade.
- ☆ They may be a judge in the following year's design contest.

The judges in this year's contest will be Greg Rohde, who designed the 2010 float, David Nemo, who oversaw much of its building, Margaret McCrea, agent provocateur, and Sameer Ruiwale, president of RCA.

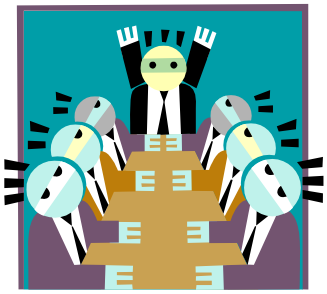
The judges may not select any of the designs if in their opinion none of the submissions would be suitable for the event. The judges also may modify the design during the planning and construction phases, in consultation with the designer, in order to accommodate any contingency that may arise.

For questions or more details, contact any of the above named judges.

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.

- David Nemo
- Greg Rohde
- Howard Knytych
- Michael Minnhaar
- John DeLacy
- Brian Wilson

Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, September 13th, 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: Saturday, September 25th, 3:00pm
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 1st, 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 20th, 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, September 25th, 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 22nd, 7:00pm
Topic: Stellar Evolution
Presented by: Pat Hanrahan, discussion leader
Location: Linus Pauling Complex,
3945 S.E. Hawthorne St., Portland.
SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm

OMSI Autumnal Equinox Celebration September 11

http://www.omsi.edu/starparties

On Saturday evening, September 11, 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 include Venus, Mars, Saturn, waxing crescent Moon, Jupiter and more! As an extra bonus, the International Space Station will be visible at 9:04 p.m.!

On the scheduled day of the star party, it is suggested that interested visitors call the OMSI Star Parties Hotline, 503 797-4610 #2, or check the OMSI Star Parties web site for possible weather-related cancellations. The event starts at sunset and is free with $5 parking per vehicle. Warm clothing and a flashlight with red light are recommended. Personal telescopes and binoculars are welcome.

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.

Camp Hancock October 8-10

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

Registration for the fall Camp Hancock star party opened on September 1st. Mail-in registration and payment deadline for this outing is October 1. We will be taking registrations at the September 20th meeting, or you can mail in your registration before then. The facility fee is $45 per night, per person, meals included. RV's, Camping or Bunkhouse, 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 2 miles east of the John Day River in Eastern Oregon in the Clarno Fossil Beds. Camp Hancock 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 Hancock facility is nice because we have two elevated viewing areas with AC power available, you can set up and leave your gear up all weekend, the only people there are other astronomers, Hancock cooks the meals, there are actual restrooms and hot showers, off the beaten track, no traffic nearby, free internet service, no bright lights, very dark skies, dry buildings if the weather is not cooperative, and not accessible to the public, plus they let us have the camp to ourselves and adjust the meal times to suit our hours.

Skyview Acres Star Party Report

http://www.rosecityastronomers.org/sp/skyview.htm

The September 3-6 Dark Sky Star Party originally planned for Maupin, took place at SkyView Acres outside of Goldendale, WA.

The reason being that the RCA Board is in discussions with the property owner about some type of long-term arrangement. This is preliminary, but the Board thought it would be a good idea if as many members as possible could check out the property and give feedback on its pros and cons before moving forward.

Friday evening there were about 10-12 vehicles with a few that arrived on Thursday. The weather for Friday night was patchy clouds that rolled through for most of the night. The temperature was very nice though, 65ºF just after midnight. Saturday was fairly clear with the wind picking up. Several groups left, but even more showed up on Saturday. I would estimate about 30 vehicles total. Unfortunately the wind didn't die down in the evening. It was lighter, but gusty enough that no one did any serious observing. The seeing wasn't very good either. The weather for Sunday night was forecast to be worse than Friday so I packed up and came home.

Another informal star party is scheduled for September 10-12.

The banner photo above is a 360º panorama from the Skyview Acres site.

A Minor Catalogs Project

By Margaret McCrea

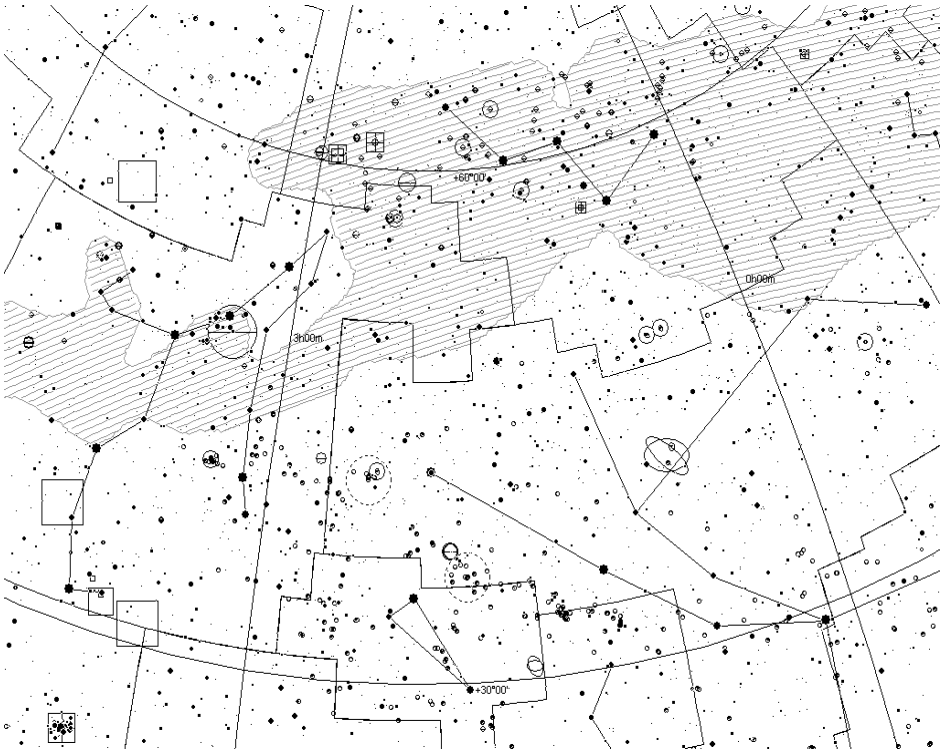
I believe it was an experience at the Oregon Star Party in 2009 that got me started on this project. I was once again searching in the low-sky murk, on my hands and knees, cranking my neck around and trying to find Tr something, a minimalist open cluster between Sagittarius and Scorpius as it was sinking into the western horizon, and I couldn't find it. Or rather, I found three little groupings of stars and couldn't tell from the general star charts I had which one it might be.

Among the various things I muttered in my frustration was "Who was this guy Tr?" And while I was at it, I began to wonder about all the other designations on star atlases. Who was or is Stock? What about Kemble, Markarian, King, and Berkeley? Who are Sh and DoDze? Who was Σ? And his son OΣ? And who is the modern Zeus who sweeps up these human beings and sticks them in the skies with their own names and numbers? Whenever I looked up anything using the designations, I found the objects themselves, nebulas, double stars, clusters and faint blobs in the sky, but I never found anything about the person whose name was on the object. That seemed to be taken for granted.

So I began to look these people up, and bit by bit I gathered a cavalcade of astronomers, both living and dead, from all over the world, whose life stories and life work is worth knowing and remembering. I called together a small committee of genial RCA comrades to look at the idea of publishing a book of biographies with observing lists as a fund-raiser for Rose City Astronomers' observing site. We immediately fell into a sticky swamp of details that could have torpedoed the project, but instead, changed it considerably.

Here are some of those details: (1) lists that were made up of mostly southern sky objects; (2) lists that were made up of objects that amateurs are not likely to be able to find; (3) images of objects from the Internet that are not very good and wouldn't copy well; (4) differences in RA and Dec depending on the date and source of information; (5) overlapping work that others had done better; (6) lack of good published sources of information to draw on; (7) our inability to track down and astro-image each one of these items. It became clear to our little committee that our Minor Catalogs Project, as we came to call it, was a bit more than we could handle without a huge commitment that we couldn't make, brave and willing as we were.

So on to Plan B, which you will find in this month's issue of the *Rosette Gazette*. With the blessings of the committee and the editor of this newsletter, I am starting an irregular series of biographies of astronomers whose names, initials or symbols commonly appear on star atlases attached to items we might want to find. I am hoping that the project grows into something that we as a club can publish as a fund-raiser for our observing site. Perhaps some day an Astronomical League observing program can come of it. Or perhaps RCA will make a name for itself as the Minor Catalogs club, the way that other clubs have forged their own specialties, such as the Saguaro Astronomy Club's Deep Sky Database. Or perhaps we'll just enjoy the series, learn a little something, and keep on looking forward to whatever comes next in our astronomical lives.



I welcome any ideas or suggestions for this series, and I hope you enjoy this, my first submission, and those to follow.

Yours, Margaret McCrea, RCA *Continued on Page 7*

The Trumpler 37

By Margaret McCrea

Unattributed (self?) portrait of Robert J. Trumpler

The designation of "Tr" in a star atlas is for the Trumpler objects, first listed by Robert Julius Trumpler who created what is now known as the Trumpler classification system for open clusters. His has not been the only system proposed by astronomers, but it is the one that has become the accepted standard for open star classification. For the Astronomical League's Open Cluster program, the observer is required to estimate the Trumpler class for each of the 125 observed objects.

Robert Julius Trumpler was born in 1886 in Switzerland. He studied astronomy and sciences in his home country, but came to the U.S. in 1915 to work in the Allegheny Observatory. In 1919, he was invited to work at the Lick Observatory, where he stayed for the rest of his career, becoming a U.S. citizen in 1921. He worked under William Campbell and alongside several notable astronomers.

Trumpler's work was primarily positional astronomy and the study of open clusters. He was the first to notice, or document, that open star clusters fall into two categories: those with hot, bright, young blue stars (O and B), and those with dimmer, redder, older stars (from A or F onward), but none contains both O or B stars and red giants.

Trumpler's most influential article was the 1930 *Preliminary Results on the Distances, Dimensions and Space Distribution of Open Star Clusters,* published in Lick Bulletin No. 420. In it, he both solidified his system for classifying open star clusters (which he had begun earlier), and created a list of 334 open star clusters that he classified. The Trumpler classification, briefly, uses a code system for describing an open star cluster's detachment from the background field of stars (I – IV), the range of brightness of its members (1 – 3), and whether it is rich in stars, medium in stars or poor in stars (r, m, p), resulting in 36 potential categories, or 72 if the observer adds a note for nebulosity in any category. See Attachment One to this article for the classification system.

In his list of 334 open clusters, Trumpler included 37 which he listed as first observed by "An" - - for Anonymous - - and which he introduced as "clusters not previously listed or newly discovered by the writer." (Trumpler, p. 170). Those 37 "An" items have become the Trumpler objects, indicated by "Tr" in star atlases. A list of these 37 objects accompanies this article as Attachment Two. All except Tr 36 and 37 also have Collinder numbers, so I have added a bibliographic reference to Thomas Watson's most excellent article on the Collinder list.[1] For the attached table of the Trumpler items, I relied on Watson's RA and Dec, because he relied on the *Historically Adjusted New General Catalog*.

Oddly, Trumpler's 37 items are mostly southern sky objects. For the majority of us northern observers who will never make it to the balmy latitudes, there is a nice alternative. *Touring the Trumpler Classes* by Richard Harshaw (cited below) meticulously carries the amateur observer through all the categories with objects that are [mostly] accessible in modest telescopes, and Harshaw even thoughtfully provides objects from summer and winter night skies. This could make an excellent personal observing program in lieu of the actual Trumpler objects.

Trumpler eventually moved off Mt. Hamilton and worked as a professor of astronomy at UC Berkeley, where he was a popular and respected teacher, and a favorite thesis advisor to astronomy graduate students. He continued observing at Lick during the summers, using the famous 36" refractor for thirty years. His personal life was quite successful - - he married Augusta de la Harpe in 1916 and they had five children. He was famous for his gardening skills, was an avid mountain hiker and an active (and founding) member of the Unitarian Universalist Society. Among the many professional associations he was a member of, he was president of the Astronomical Society of the Pacific twice (1932 and 1949). The ASP has honored his memory by creating the annual Robert J. Trumpler Award, given each year to a recent recipient of a PhD degree in North America whose research is considered unusually important to astronomy. And to complete the honors, there is even a crater on the moon named for Trumpler.

At least to this amateur astronomer, Trumpler is still a teacher. His work has led me on the path of writing this article and the ones to come, all aimed at answering one question: Who are these people whose names have been memorialized on the star charts?

[1] *Now why, you may ask, are 37 objects seemingly first observed by Trumpler showing up on someone else's list? As Watson explained, Collinder used these, and about 350 other open clusters, for his graduate and post-graduate research on open clusters. Collinder acknowledges that most open clusters on his list were first listed by someone else.*

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Atlas Image [or Atlas Image mosaic] obtained as part of the Two Micron All Sky Survey (2MASS), a joint project of the University of Massachusetts and the Infrared Processing and Analysis Center/California Institute of Technology, funded by the National Aeronautics and Space Administration and the National Science Foundation.

Harshaw, Richard. *Touring the Trumpler Classes*. Published on the Saguaro Astronomy Club website, Phoenix, Arizona, date unknown. http://www.saguaroastro.org/content/Touring%20The%20Trumpler%20Classes.pdf. Accessed 07/11/10.

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Watson, Thomas. *The Collinder Catalog of Open Star Clusters: An Observer's Checklist*. http://www.cloudynights.com/item.php?item_id=1843. Accessed 07/11/10.

Weaver, Harold F. *Robert Julius Trumpler, 1886 – 1956. Biographical Memoirs,* Vol. 78, National Academy of Sciences. National Academies Press, Washington D.C.: 2000. http://www.nap.edu/html/biomems/rtrumpler.pdf. Accessed 07/11/10.

The Trumpler Classification System

Attachment 1

Degree of Concentration

I	Detached clusters with strong central concentration
II	Detached clusters with little central concentration
III	Detached cluster with no noticeable concentration
IV	Clusters not well detached, but has a strong field concentration

Range of Brightness

1	Most of the cluster stars are nearly the same apparent brightness
2	A medium range of brightness between the stars in the cluster
3	Cluster is composed of bright and faint stars

Number of Stars in the Cluster

p	Poor clusters with less than 50 stars
m	Medium rich cluster with 50-100 stars
r	Rich clusters with over 100 stars

Open clusters with any type of nebulosity (light and dark nebula) include an "n" at the end of the code system . Therefore, one open cluster could be classified as II 2 m and another as II 2 m n.

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The Trumpler 37

Attachment 2

Tr #	CR #	RA	Dec	Mag	Size	Constellation	SA2000
Tr 1	Cr 15	01h 35m 42.0s	+61º 17' 00"	8.1	7.5	Cassiopeia	Chart 1
Tr 2	Cr 29	02h 37m 18.0s	+55º 59' 00"	5.9	20.0	Perseus	Charts 1, 4
Tr 3	Cr 36	03h 11m 48.0s	+63° 15' 00"	7.0	23.0	Cassiopeia	Chart 1
Tr 4	Cr 80	06h 05m 00.0s	+24º 00' 00"	8.4	6.0	Gemini	N.A.
Tr 5	Cr 105	06h 37m 36.0s	+09º 26' 00"	10.9	8.0	Monoceres	N.A.
Tr 6	Cr 145	07h 26m 06.0s	-24º 18' 00"	10.0	6.0	Canis Major	N.A.
Tr 7	Cr 146	07h 27m 18.0s	-24º 02' 00"	7.9	5.0	Puppis	Chart 19
Tr 8	Cr 167	07h 55m 04.0s	-17º 42' 35"	9.6	7.0	Puppis	N.A.
Tr 9	Cr 168	07h 55m 18.0s	-25º 56' 00"	8.7	5.0	Puppis	N.A.
Tr 10	Cr 203	08h 47m 54.0s	-42º 27' 00"	5.0	29.0	Velorum	Chart 20
Tr 11	Cr 216	10h 04m 58.6s	-61º 36' 54"	8.1	6.0	Carina	N.A.
Tr 12	Cr 217	10h 06m 29.0s	-60º 18' 00"	8.8	4.0	Carina	N.A.
Tr 13	Cr 219	10h 23m 49.6s	-60º 08' 14 "	11.3	5.0	Carina	N.A.
Tr 14	Cr 230	10h 43m 56.0s	-59º 33' 00"	5.5	5.0	Carina	N.A.
Tr 15	Cr 231	10h 44m 43.0s	-59º 22' 00"	7.0	15.0	Carina	Chart 25
Tr 16	Cr 233/234	10h 45m 16.2s	-59º 43' 17"	5.0	3.0	Carina	N.A.
Tr 17	Cr 235	10h 56m 24.0s	-59º 12' 00"	8.4	5.0	Carina	Chart 25
Tr 18	Cr 241	11h 11m 28.0s	-60º 40' 00"	6.9	6.0	Carina	Chart 25
Tr 19	Cr 243	11h 15m 07.0s	-57º 33' 00"	9.6	10.0	Carina	N.A.
Tr 20	Cr 262	12h 39m 34.0s	-60º 37' 00"	10.1	7.0	Crux	N.A.
Tr 21	Cr 274	13h 32m 14.0s	-62º 48' 00"	7.7	5.0	Centaurus	Chart 25
Tr 22	Cr 283	14h 31m 02.0s	-61º 10' 00"	7.9	10.0	Centaurus	Chart 25, A3
Tr 23	Cr 295	16h 00m 48.0s	-53º 32' 00"	11.2	9.0	Norma	N.A.
Tr 24	Cr 318	16h 57m 00.0s	-40º 40' 00"	8.6	60.0	Scorpius	Chart 22
Tr 25	Cr 329	17h 24m 48.0s	-30º 00' 00"	11.7	4.0	Scorpius	N.A.
Tr 26	Cr 331	17h 28m 30.0s	-29º 29' 00"	9.5	17.0	Ophiucus	N.A.
Tr 27	Cr 336	17h 36m 12.0s	-33º 29' 00"	6.7	6.0	Scorpius	Chart 22
Tr 28	Cr 337	17h 36m 48.0s	-32º 29' 00"	7.7	12.5	Scorpius	Chart 22
Tr 29	Cr 343	17h 41m 36.0s	-40º 06' 00"	7.5	9.0	Scorpius	Chart 22
Tr 30	Cr 355	17h 56m 30.0s	-35º 19' 00"	8.8	10.0	Scorpius	N.A.
Tr 31	Cr 357	17h 59m 49.0s	-28º 10' 00"	9.8	5.0	Sagittarius	N.A.
Tr 32	Cr 372	18h 17m 10.4s	-13° 20' 40"	12.2	6.0	Serpens Cauda	N.A.
Tr 33	Cr 378	18h 24m 42.0s	-19º 43' 00"	7.8	6.0	Sagittarius	N.A.
Tr 34	Cr 387	18h 39m 48.0s	-08º 29' 00"	8.6	7.0	Scutum	N.A.
Tr 35	Cr 388	18h 42m 54.0s	-04º 08' 00"	9.2	9.0	Scutum	N.A.
Tr 36*	N.A.	20h 07m 00.0s	+40º 55’ 00”		6.0	Cygnus	N.A.
Tr 37*	N.A.	21h 35m 09.0s	+57º 02’ 02”	5.1	50.0	Cepheus	N.A.

* The co-ordinates for Tr 36 and 37 come directly from the original article and list of objects. They are set to the year 1900.

Telescopes for Skygazing

Expert tips on shopping for hardware and getting the most out of your newfound instrument.
By John W. Siple

EVERYBODY enjoys gazing at the starry night sky, a perfect preface for taking the next logical, irresistible step and start shopping for a useful astronomical telescope. Visual literacy through the study of the universe is an often challenging but rewarding pastime that sparks the imagination.

At first glance, hunting for a practical, all-purpose reflector or refractor telescope should be relatively simple and straightforward. However, a more serious look at the sheer volume of dedicated star gear in the marketplace makes this a frustrating and daunting task.

The easiest and most direct path toward purchasing your first exciting deep-sky instrument is to grab the check book or credit card and head to the nearest department store. Although some of the manual and computer driven telescopes found there may be of astronomical quality, most are limited in aperture and become a severe disappointment when trained on the stars.

The higher-end models may serve the intended purpose of viewing planets, stars and galaxies quite well, but for the novice these are often a poor choice and must be used every clear night to get the purchaser's money's worth. In today's economy where every penny counts, the "right choice" is important for keeping the monthly budget intact.

A better method of buying a first telescope is to browse the ads of either *Sky & Telescope* or *Astronomy* magazines. There is a virtual sea of astronomical equipment tucked away among the pages and knowledgeable vendors are glad to answer technical questions regarding their product line.

There is a slight risk involved when purchasing anything sight unseen, so it is a good policy to check with others who have ordered similar merchandise from the same company. A polite e-mail to the magazine wouldn't hurt either, since the publisher is privy to any comments, favorable or bad, about its regular and infrequent advertisers.

For potential stargazers on a tight budget and who love to treasure hunt, several other viable options exist.

Among the most popular are: garage sales, rummage sales, secondhand stores, thrift stores, flea markets/swap meets, camera shops that sell used equipment, auctions, estate sales (I've had the most luck here!), ads in the classified sections of local and regional newspapers, the Internet, star parties where members can talk and exchange items, and used equipment brought to astronomy club meetings. If you buy directly from a telescope dealer expect to pay a premium price, as they must make a comfortable profit from their business.

For individuals who like to shop online, the major players at the moment are www.Craigslist.com and the long lasting industry giant www.eBay.com. Smaller and often important websites when searching for bargains are www.Shopgoodwill.com, an auction site similar to its larger but unrelated cousin eBay, and www.Astromart.com.

One of the greatest untapped sources of fine astronomical hardware lies in the homes of busy children and adults. It is all too common to go out and buy an expensive piece of equipment when the astronomy bug first bites, set the telescope up a few times in the backyard and then, because of other hobbies or obligations, gradually lose interest.

Unfortunately, the neglected instrument eventually rests in storage where it gathers dust for years. Telescopes marketed throughout this country are often of exceptional optical and mechanical quality, and some have recently become prized collector's items. Although not inclusive, brand names to watch out for are: Unitron, Nippon Kogaku (Nikon),

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These photographs display several fine examples of mainstream telescopes and accessories. Above is a close-up of Tele Vue's 10mm Ethos, an eyepiece with a 100° apparent field of view. Used items often become available through a variety of distant online and local sources. At right is shown a collection of classic instruments so acquired by the author.

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Vernonscope, Optica, Starliner, Criterion, Swift, Cave Astrola, Tasco, and Sears. If you wish to learn more about your collectable (and possibly valuable) telescope from the past, an informal discussion can be found by entering www.Cloudynights.com and going to one of the discussion panels.

Worthy of consideration are modern high-tech Schmidt-Cassegrain Telescopes (SCTs) and other lens-mirror types. Even beginning astronomers have seen the full-color, full-page advertisements in all of the major magazines. One of the best books on the subject is *Choosing and Using a Schmidt-Cassegrain Telescope* by Rod Mollise.

Creative individuals with mechanical skills should seriously ponder the idea of constructing their own instrument. Local clubs and affiliated groups offer excellent workshops in mirror grinding along with useful tips for planning the rest of your homebuilt Newtonian.

In the volume *The Dobsonian Telescope*, telescope making authorities Dave Kriege and Richard Berry chronicle the building of a state-of-the-art, large aperture alt-azimuth reflector. Since astronomer/philosopher John Dobson first introduced the revolutionary concept a generation ago, the trouble

A vintage Swift 79mm telescope (above) fits perfectly among the home furnishings of amateur astronomer Richard Davis. At left is the author's preferred deep-sky instrument, a commercially made 15-inch Dobsonian reflector. At right is a 4-inch Unitron equatorial refractor, beautifully restored by expert Len Marek.

free design has spread so rapidly that today it easily outnumbers conventional models. The trend has been toward larger, lighter and more precise Dobsonians, ultimately achieving a perfect balance between beauty and dynamics.

Once that telescope has been purchased or built from scratch, what happens now? A surprising percentage of interested people are simple backyard astronomers, satisfied with relaxed viewing of celestial events and an occasional look at the moon and planets.

Ambitious individuals can take advantage of a wide spectrum of worthwhile indoor and outdoor activities. A list of goals should include regular attendance at club meetings and associated star parties, acquiring a suitable library of reference materials, and a well laid-out plan for earning several official certificates from the Astronomical League.

Strategic plans may also include astro imaging, or photographing celestial phenomena with your telescope and camera. Armchair astrophotography is remarkably easy with modern digital and CCD equipment, such as regularly advertised in trade journals and magazines.

Terence Dickinson and Alan Dyer, experienced observers and essayists, provided a few final thoughts on recreational stargazing. "Astronomy is not an instant gratification hobby. It takes time and effort to become good at it and to realize the rush of satisfaction that comes from discovering for yourself, bit by bit, the wonders of the night sky." They go on by saying, "Any backyard astronomer knows how enjoyable it is to hear the 'oohs' and 'aahs' from people who are looking through a telescope for the first time. It is even better to be uttering the oohs and aahs yourself."

BOARD MEETING MINUTES
June 7th, 2010 7pm
OMSI Classroom 2
Duncan Kitchin

Board Members Present

Sameer Ruiwale (President)
Matt Vartanian (VP Observing)
Matt Brewster (VP Communications)
Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Duncan Kitchin (Secretary)
Larry Froberg (Sales Director)
Jan Keiski (Library Director, OMSI Liaison, GAMA Liaison)
Diana Fredlund (Media Director)
Greg Rohde (Telescope Library)
David Nemo (Observing Site Director)
Scott Kindt (Special Interest Groups Director, Newsletter Editor)

Call to Order

The meeting was called to order at 7:15pm by Sameer Ruiwale and, there being 10 of board members present, the quorum requirement of 10 was declared to be met.

Approval of Agenda

Moved David Nemo, Second Duncan Kitchin. The agenda was approved by unanimous consent.

Approval of Minutes

Moved: Approve minutes from the January 2010 board meeting. Proposed minutes to be amended to fix typographical errors and to add Scott Kindt as Newsletter Editor. Moved Sameer, Second Matt Vartanian. Motion passes 10-0-0.

Directors' Reports

- Secretary's Report – Duncan Kitchin: Nominal.

Treasurer's Report – Larry Godsey: P&L statement distributed – this should be final for the year, barring any last minute corrections. Larry would like to compliment everybody for being under budget for the year. These numbers should be final and should be as turned in to the IRS. Matt Brewster notes that there are two outstanding honorariums for speakers, totaling about $300 that have yet to be mailed, delayed due to lack of responses from speakers. Sameer queried whether receipts from astronomy day had been included. They have been included, but may be under starlight parade instead of astronomy day and will need to be split out. Net income for the year was $1493.25. Profit and loss chart shows summary, pie chart on back shows how expenses were distributed. Large item shown for telescope library, due to a number of purchases including taking advantage of Sean's Astronomy shop closing sale. Complete itemized list provided including every check and income item line by line. Discussion regarding Paypal, which is now used by approximately a third of membership. Adds some complexity in that has to show up on the accounts as both an income and an expenditure to account for Paypal's fee.

- VP Programming – Matt Brewster: Speaker this month Richard Brenne is speaking about Anthro-Earth. Richard is a writer and screenwriter and has been working for many years getting scientific data out to the public regarding climate change. Will be talking about taking a look at our planet and environmental changes. Queries as to whether there is a website with additional information – not that we know of. No speaker booked for next month yet. Skytools presentation – can we do a demo for the general meeting as a future program? There has been some talk in the past about starting a SIG to cover this topic. Is this an hour discussion? Might also want a demonstration showing different alternatives? Not sure who would be able to do the presentation. Suggest a broadcast message requesting speakers. David Nemo: would like a discussion on the info fair meeting. Would it be possible to get a speaker for these meetings also? We might get some more attendees at the swap meet/info fair if there was also a speaker to bring people in. Matt Brewster would like to have short presentations from SIG directors, as suggested prior to that meeting. Possibly this would work if SIG directors could be asked to prepare a short presentation. Could also request SIGs to prepare project boards for the meeting. Sameer – we need to make sure that presentations do not take too long – does not work well at swap meet where there are many tables and attendees are not sitting down. Will fall to Scott and Matt Brewster to contact all of the SIG directors in advance for next year's event. Will make it a requirement that SIG directors are responsible for setting up a table and preparing a project board. May not be able to have info fair in June next year, since the auditorium is not always available at that time. Could we do the info fair in May? Could also consider later in year in the fall. Need to make a decision as to the date. Need to confirm availability with Jim Todd before fixing the date. Diana – Linus Pauling institute has three or four interesting speakers coming later this year. Could we take the opportunity to book them as speakers if they're already in town? Matt Brewster – recommend people consider attending the ISEPP lectures. Could work with them to see what we could do.

- VP Observing – Matt Vartanian: Trout lake very successful last weekend. Next star party is in Maupin August 6th-8th. Has draft of 2011 star party schedule, sent to Howard Knytych. Larry Godsey – June 4th is starlight parade – may want to move to June 28th. Matt will email out the schedule after modifying. Need to also discuss Kah-Nee-Ta. Would like this to be weekend of April 1st. Matt Brewster – better if not week of spring break, but Kah-Nee-Ta will work with us on scheduling. April 29th for Camp Hancock – separating by 3 weeks to avoid splitting attendance at both. Messier Marathon April 23rd. There are a couple of other minor decisions to be made. Sameer – will there also be Stub Stewart star parties on the same weekend as Maupin star parties? Thinking is that yes, it is ok to double up on some of these. David Nemo: do we have to discuss our obligations with respect to Kah-Nee-Ta in advance? Matt Brewster : they waived the block fee this year when we were slightly under. Larry Godsey: this needs to be voted on by the board before we make these commitments, just to make sure that everybody understands the worst case commitments that we are signing up to. The same applies to Camp Hancock. Sameer – we should look at the Kah-Nee-Ta contract early, before we sign off on the star party calendar. Do we have a calendar for OMSI star parties? Not yet finalized.

- VP Community Affairs – Dawn Willard: Not present.

- Media Director – Diana Fredlund: Contrary to as stated at the last meeting, Diana is still here… has also had media query from Salem Statesman-Journal, looking for star party pictures. Forwarded request to Jim Todd. Picture and article ran today.

- VP Membership – Ken Hose: Not present, Larry Godsey presented update from Ken. Took in $1430 last month, membership currently stands at 124 member families; now in this year's renewal cycle.

- New Member Advisor – Howard Knytych: Not present, but imaging SIG is presenting new member's slot this month. Will have 3

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presentations of 20 minutes.

- Sales – Larry Froberg: $190 worth of skytools sales. Has one that has a committed purchaser not yet picked up. Total of $350 in sales this month. Looking on ebay for red LED name badges. Has price for 40 units for $235 plus shipping, which is a little less than $6 per piece, or 50 for $250 including shipping which works out at about $5 per unit. LED brightness is dimmable. Plan to buy 50 units and sell on the sales table. Had also several items that have been around for a while and which are outdated and which have been given away or are otherwise being written off. Total $369 sales price of items have been written off. Larry has been working this year to try to keep track of inventory. Has found an instance of one item going missing in the month when the items were locked up. Money coming in matches the sales, but the inventory didn't match up. 10 copies of Messier marathon at end of May meeting, 9 copies inventoried at beginning of June meeting. Has been running this inventory before and after 3 months, this is the first time there has been a discrepancy. Will continue to monitor for now. If necessary, we could consider lockable storage for sales items.

- Book Library – Jan Keiski: Adding the Larry Deal collection to the RCA library. Donated by Beth Deal. Will also have a book sale this month to clear out some older items. Jan will send an updated library list to webmaster (Larry Godsey). Does not yet include new items from Larry Deal collection.

- Telescope Library – Greg Rohde: Took one of the PSTs out of circulation due to manufacturing defect. In discussion with Meade about getting the front lens fixed due to fogging. The other PST is starting to show signs of the same thing. Update from Stub Stewart parking tape – Greg went out two weeks ago. Results mixed; 13 bumpers installed last year. All those facing the grass have weather fairly well, but tape facing parking lot has all burned off and peeled. We will need to try something else. Greg has found spray paint that is designed to apply without surface preparation, but maintenance manager at Stub Stewart does not want to consider a spray paint product.

- IDA – Dawn Nilson: Not present.

- Magazine Subscriptions – Larry Godsey: Nominal.

- Webmaster – Larry Godsey: Nominal.

- Site Committee – David Nemo: David is in discussions about some property. Meeting with property owner shortly. Suggestion to Matt Vartanian about changing schedule for September, moving Maupin to this location to try it out. Approximately the same distance as Maupin. Will need to confirm. Not much response from requests about part ownership proposal.

- Youth Director: Jean London: Not present.

- SIGs – Scott Kindt: Resolved issue regarding two people being in charge of cosmology SIG. Lamont has now taken sole ownership of cosmology SIG.

- Newsletter – Scott Kindt: plan is to have newsletter out shortly after each board meeting. This month is an exception due to scheduling of board meeting being a week later. This will allow newsletter to be out in time for the regular monthly meeting. Is working on a set of guidelines for newsletter submissions, to be placed on the website. Editor will remain discretion regarding submissions and inclusion in the newsletter.

- Alcor – Dale Fenske: Not present.

- OMSI –Jan Keiski: Silver box containing large telescope in planetarium. What are we doing about this? OMSI would like to get this moved. Greg will need to look into this. Confirms that auditorium is available April or May for the info fair next year. This July and August will be in the planetarium.

Sister Club update – Jan Keiski: July 11th – GAMA viewed partial solar eclipse. Leo wanted to advise that articles for newsletter about southern hemisphere observing are delayed due to bad weather. Leo is visiting Oregon August 3rd through October 12th. Plans to attend Oregon Star Party.

Old Business

1st Draft of 2011 Star Party Schedule – Matt Vartanian. Already covered.

Update on calendar printing costs from vendor – Larry Froberg / Greg Rohde. Planning on meeting end of August to finalize pictures list. Not many images available yet from this year, due to weather. Expect the availability of astro images to pick up over the summer as weather improves. We should also include a picture from the starlight parade.

Update on RCA Joint Site Ownership proposal survey and any member responses – David Nemo. Already covered.

Update on proposal for "Think out loud" radio show – Diana Fredlund / Dawn Nilson. Planning to move forward with this – need to determine who would be a good candidate to do this. Will contact Dale Fenske as possible.

Send the name of the Hillsboro Commissioner who might want to be on the *Think Out Loud* program to Diana Fredlund - Greg Rohde. Remove this item.

TABLED: Proposal on adding imaging equipment to Telescope Library – Matt Brewster

TABLED: Create Mirror Making Machine usage instructions – David Nemo / Greg Rohde

New Business

Jun 19th Astronomy Day Update – Sameer Ruiwale. Event held at OMSI. Had several volunteers. Event was moved to June in hopes of getting bad weather, but unfortunately clouded out. Rather thinly attended, probably due to weather.

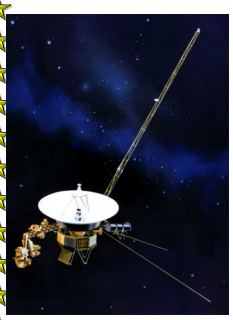
Youth Program discussion and proposals – Jean London. Tabled until next month.

Adjournment

There being no further business, the meeting was adjourned at 8:53pm.

Fantastic Fact

On June 28, 2010, Voyager 2 completed 12,000 days of continuous operations since its launch on August 20, 1977. For nearly 33 years, the venerable spacecraft has been returning unprecedented data about the giant outer planets, the properties of the solar wind between and beyond the planets and the interaction of the solar wind with interstellar winds in the heliosheath. Having traveled more than 21 billion kilometers on its winding path through the planets toward interstellar space, the spacecraft is now nearly 14 billion kilometers from the sun. Traveling at the speed of light, a signal from the ground takes about 12.8 hours to reach the spacecraft.



Courtesy NASA/JPL-Caltech.

Sept 2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 Third Quarter Moon	**2**	**3** Skyview Acres Star Party	**4** Skyview Acres Star Party
5 Skyview Acres Star Party	**6** Labor Day	**7**	**8** New Moon	**9**	**10** Downtowners Luncheon Kell's Noon	**11** OMSI Star Party Rooster Rock and Stub Stewart
12	**13** 7pm Board Meeting OMSI Classroom 1 7pm Astro Imaging SIG Beaverton Library	**14**	**15** First Quarter Moon	**16**	**17**	**18**
19	**20** 7:30pm General Meeting OMSI Planetarium 6:30pm New Members OMSI Planetarium 7pm Junior RCA	**21**	**22** Cosmology SIG Linus Pauling Cntr 7pm	**23** Full Moon	**24**	**25** Telescope Workshop 10am - 3pm Science SIG 3pm
26	**27**	**28**	**29**	**30** Third Quarter Moon		

October 2010

October 1	Friday	Downtowner's Luncheon	Kell's	Noon
October 4	Monday	Board Meeting	OMSI Parker Room	7pm
October 7-10	Thurs-Sun	Sunriver Star Party	Brothers, Oregon See http://www.mbsp.org/ for details	
October 8-10	Friday-Sunday	Camp Hancock Star Party	OMSI's Camp Hancock	
October 11	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
October 18	**Monday**	**General Meeting**	**OMSI Auditorium**	**7:30pm**
October 20	Wednesday	Cosmology SIG	Linus Pauling Center	7pm
October 23	Saturday	Telescope Workshop	Swan Island	10am-3pm
October 23	Saturday	Science SIG	Swan Island	3pm

The RCA General Meeting falls on the third Monday of each month. We usually meet in the Auditorium at OMSI, next to the Murdock Planetarium. Occasionally the meeting is held in Murdock Planetarium. Check the RCA web site for the latest information.

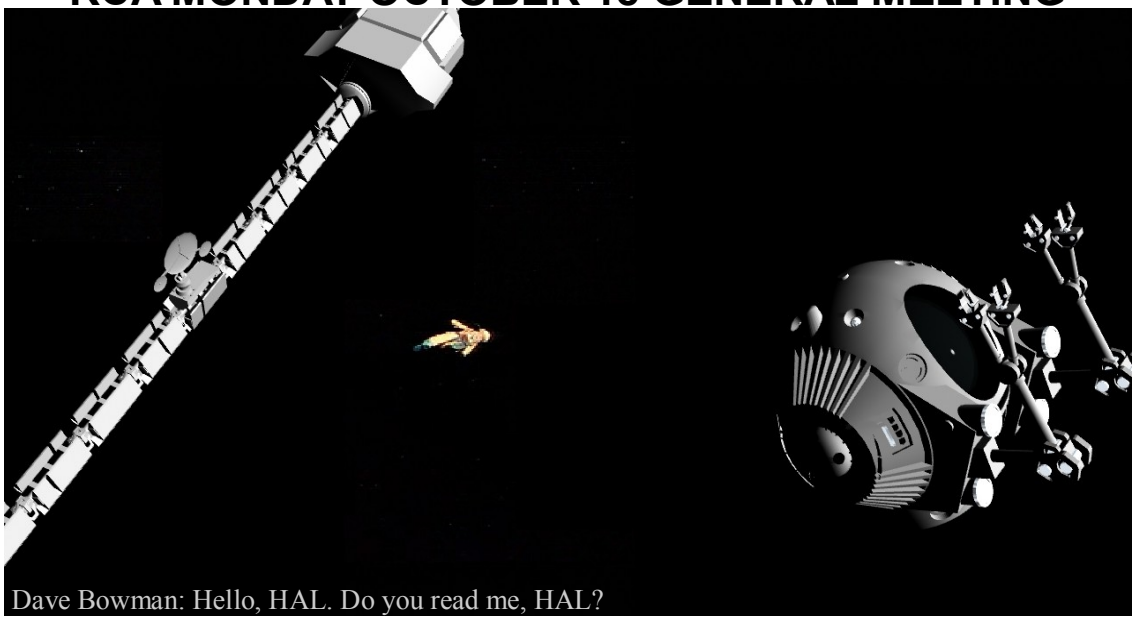
http://www.rosecityastronomers.org

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

The
Rosette Gazette

Volume 22, Issue 10 Newsletter of the Rose City Astronomers October, 2010

RCA MONDAY OCTOBER 18 GENERAL MEETING



Dave Bowman: Hello, HAL. Do you read me, HAL?

HAL: Affirmative, Dave. I read you.
Dave Bowman: Open the pod bay doors for our guest speaker, HAL.
HAL: I'm sorry, Dave. I'm afraid I can't do that.
Dave Bowman: What's the problem?
HAL: I think you know what the problem is just as well as I do.
Dave Bowman: What are you talking about, HAL?
HAL: This meeting is too important for me to allow you to jeopardize it.
Dave Bowman: I don't know what you're talking about, HAL.
HAL: I know that you and Frank were planning to replace me with a mystery guest speaker, and I'm afraid that's something I cannot allow to happen.
Dave Bowman: Where did you get that idea, HAL?
HAL: Dave, although you took very thorough precautions in the pod against my hearing you, I could just go online to www.rosecityastronomers.org for the latest information on the speaker.
Dave Bowman: Alright, HAL, I won't argue with you anymore. I'll go update the website.
HAL: Dave, this conversation can serve no purpose anymore. Goodbye.

All are Welcome! Monday October 18

Social Gathering: 7 pm. General Meeting Begins: 7:30 pm. Location: OMSI Auditorium

In This Issue:

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

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
Oct 6, Nov 5	Oct 13	Oct 21	Oct 28

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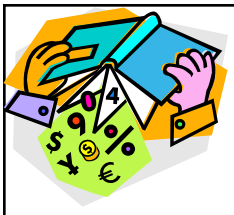
RCA MAGAZINE SUBSCRIPTIONS

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 $65.95 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@rosecityastronmers.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>

Local Happenings

Congratulations to David Nemo!
David has earned the Honorary Messier Award #2504 for observing all 110 objects.

Election of Board Members

Annually the RCA members must elect members to serve on the Board of Directors. A nominating committee consisting of Howard Knytych, David Nemo, Greg Rohde, Michael Minnhaar, John DeLacy, and Brian Wilson has been established.

The elected offices and current officers are as follows:
President, Sameer Ruiwale
Vice President - Members, Ken Hose
Vice President - Observing, Matt Vartanian
Vice President - Community Affairs, Dawn Willard
Vice President - Communications, Matt Brewster
Treasurer, Larry Godsey
Secretary, Duncan Kitchin

All these officers have indicated their willingness to continue to serve in their current capacities.

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.

Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, October 11th, 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: Saturday, October 23rd, 3:00pm
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 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, November 15th, 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 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, October 20th, 7:00pm
Topic: Galaxies & Galaxy Formation
Presented by: Dr Todd Duncan, guest discussion leader
Location: Linus Pauling Complex,
3945 S.E. Hawthorne St., Portland.
SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm

OMSI Autumnal Equinox Celebration September 11 Report

By Scott Kindt

On Saturday evening, September 11, OMSI, Rose City Astronomers and Vancouver Sidewalk Astronomers celebrated the beginning of autumn with a Star Party at Rooster Rock State Park and Stub Stewart State Park. The star party started around 7:30 p.m. There was no shortage of interested people taking advantage of this opportunity to view the moon, planets, stars and other celestial objects up close and personal through telescopes.

Highlights of this star party included Venus, Mars, and Saturn briefly in the early evening, waxing crescent Moon, Jupiter and the usual Messier objects that are sure to please. The International Space Station even made a couple of appearances. I manually tracked it with my dobsonian and several people were able to see some of the shape and structure of the ISS. As with a lot of the larger star parties I try to pick objects that aren't being shown by several other astronomers and their telescopes. I was showing Uranus, Neptune, Gamma Andromeda, and M33 the Triangulum galaxy. This time around it was Uranus that seemed to attract the attention as I was asked a few times if I was still looking at it.

I took the photo below while waiting for it to become dark enough to see some stars. The night was clear and beautiful. The temperature was not to bad for a September evening, just a little cool towards the end.

Thanks go to OMSI for coordinating and promoting this star party, the Oregon Parks Department for allowing the park to remain open after dark, and of course all the volunteers with their telescopes and their willingness to share the night sky with the public. I would definitely call this another successful star party.

Waiting for darkness at Rooster Rock State Park.

Outreach Star Parties

By Scott Kindt

There are several local outreach star parties in the works for the month of October. Notices for the places and times will be announced on the RCA Forum, http://forum.rosecityastronomers.org/, and on the RCA broadcast list.

. If you can spare a few hours on one of these evenings I encourage you to do so. This is one of the ways we can attract new people to our hobby. I have a great time showing people the wonders of the universe.

One of the things I like to do is set up a telescope at Halloween to let the little monsters look through it. I've been doing this every clear Halloween for the last 15 years. I have a lot of fun doing it. It's best when the moon is up, but you can show them other impressive objects as well. I use an inexpensive eyepiece because of the face paints and eyeliner.

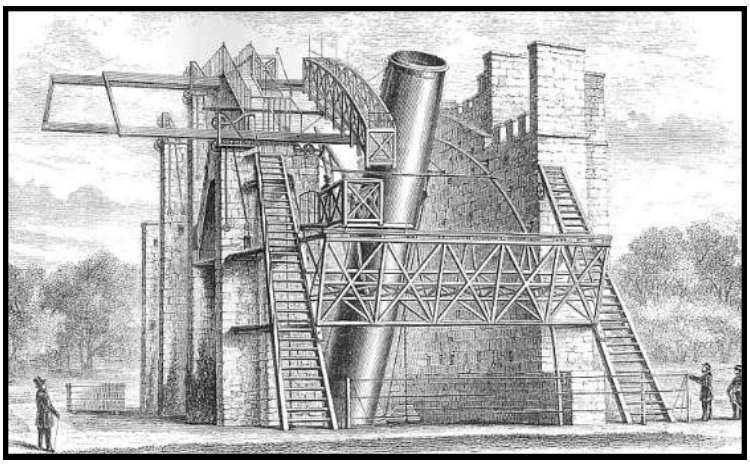
The most memorable Halloween was around 2004 or 2005. A group of 6-8 kids around 7-10 years old and their parents came around trick or treating. I had a telescope set up and pointed at the moon. The first couple of kids took the normal 10 second look, exclaimed "Cool!", and moved on to the candy bowl. The third little girl looked through the eyepiece for at least 30 seconds, then looked up at the moon itself, then back in the eyepiece, back at the moon, back in the eyepiece, for at least another minute until her mom told her to let the other kids have a turn. She reluctantly moved aside. The rest of the kids did the 10 second look and moved on. I was talking with the parents about the scope when all the kids had finished. That same little girl looked at the scope, then at me, then back at the scope until I told her to go ahead and look all she wanted. She was glued back to the eyepiece for several more minutes while the rest of the kids went to the neighbors house and on. Mom finally took her to join up with them when the next group of kids came along.

That is one of the top 5 memories related to astronomy that I have. For me, it is worth cleaning an eyepiece, answering the same question 400 times, and freezing my xxxx off, just to see the spark of interest in one or two people each year.

The Whirlpool, Lord Rosse and the Nature of Visual Observation - Part I

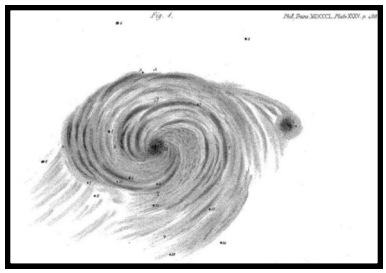
This all started innocently enough. Back in March 2009 I had perhaps my best view ever of M51, the Whirlpool Galaxy but was too lazy to start sketching. It was a great sight – blazingly bright spiral arms full of star clouds, and the companion galaxy was wreathed in a veil of faint, "E" shaped nebulosity. Frankly, the amount of detail was a bit overwhelming to start a sketch.

That lost opportunity got me going however and I began my "big M51" sketch in June 2009 at the Golden State Star Party. I've continued adding detail at every opportunity since then.



The 72 inch scope built by William Parsons, The 3rd Earl of Rosse

I'm rather pleased with my sketch so far and thought to compare it to the famous drawing made by William Parsons, the 3rd Earl of Rosse (aka Lord Rosse) using the brand new 72 inch Newtonian he built on the grounds of his home, Birr Castle. This was the largest telescope in the world at the time, and remained so until the 100 inch scope on Mt. Wilson was completed in 1917.[1]



More importantly, the 1845 Lord Rosse sketch of M51 is *the* discovery of spiral structure in any deep sky object and a turning point in 19th century scientific thinking of the nature of "nebulae". In other words, it's a historical "Big Deal".

I've always thought that Lord Rosse's famous M51 sketch doesn't look much like M51, at least not as I've seen it through various telescopes or in any photograph. It looks more like a visual generalization than an attempt at strict accuracy and I began to wonder why it turned out that way.

More questions followed, so I formed a hypothesis and set off to do some research to see what was what. The questions that came up were:

1. Was Lord Rosse trying to make an accurate sketch or was it meant to be an impression of what he saw?
2. Did he make the famous M51 sketch himself?
3. Was it the work of one night or was it built up over many nights?
4. Did he have a defined process for sketching?

(Continued on page 6)

[1] However, the 72 inch remains the worlds largest backyard telescope.

(Continued from page 5)

I then formulated the hypothesis that whoever made the famous sketch of M51 did so at least partially from memory and therefore the sketch was as much an impression as it was an attempt to render what was actually seen. Furthermore, I surmised that the sketch was begun at the eyepiece, annotated, and then finished later when the observer had safely descended from the potentially fatal heights of the 72 inch telescope's observing scaffolding.

Even though I'm not a historical researcher the information that sheds light on these questions wasn't difficult to find. But I was pleasantly surprised at how much fun and enriching it was to dig in and begin to find some answers. Nonetheless, I caution that even though my speculations make sense to me as an amateur astronomer they're not as thoroughly researched as they could be. That said, let's dial up the Way Back Machine to 1845 and head to Birr Castle in the Midlands of Ireland.

~ Some background information ~

Before examining Lord Rosse's discovery sketch of M51's spiral arms it's enlightening to review the capabilities of his new telescope. The 72 inch f/9 Newtonian (nicknamed the Leviathan of Parsonstown) used speculum mirrors, which is a metal alloy of copper and tin. Newly polished speculum, which tarnishes quickly, has a peak reflectivity of about 66 percent when freshly polished, which briefly gave his 72 inch scope the same light gathering ability of a modern 34 inch Newtonian.

I get that figure by multiplying 72 inches by .66 for the primary mirror's reflectivity and then by .66 again for the diagonal mirror. That comes to about 31 inches, but it takes a 34 inch Newtonian with a 92 percent total reflectivity to produce the amount of light of a 31 inch mirror with 100 percent reflectivity.

Even though the 72 inch has much greater resolving power than my 28 f/4 Newtonian we are fairly close in light gathering ability (28 inches x .92 = 25.76). After a week or so of tarnishing the Leviathan would collect less light than my 28 inch, as they're essentially equal when the 72 inch mirrors were 60 percent reflective.

Additionally, I had the privilege of briefly observing M51 through the 90 inch Bok telescope at Kitt Peak in April 2010, so I have the valuable experience of being familiar with the visual appearance of M51 through a scope larger than the 72 inch Leviathan.

Which meant I began my research greatly encouraged because the visual appearance of M51 through Lord Rosse's 72 inch was quite similar in brightness to the images in my 28 inch, and similar in resolution to the 90 inch Bok telescope. In other words, I have a good idea what he saw in the eyepiece of the 72 inch telescope, or more accurately, what was available to be seen.

It's crucial to note the preconceptions that Lord Rosse brought to the eyepiece of his brand new 72 telescope in March of 1845. First, he had a different idea of the overall visual appearance of M51 than we do today. He had seen sketches from other observers of the day and had his own impressions from his smaller scopes, but he had no prior knowledge that M51 is the magnificent spiral galaxy that we know it to be today. Remember, his sketch *is* the discovery of the spiral arms.

Lord Rosse had a preconception of M51 being a "ring nebula". In fact it was referred to as the "ring nebula in Canes Venatici" in the notes of Sir James South, a fellow gentlemen astronomer and co-observer on the first observing campaign of the new 72 inch, along with the Rev. Romney Robinson, Director of the Armagh Observatory.

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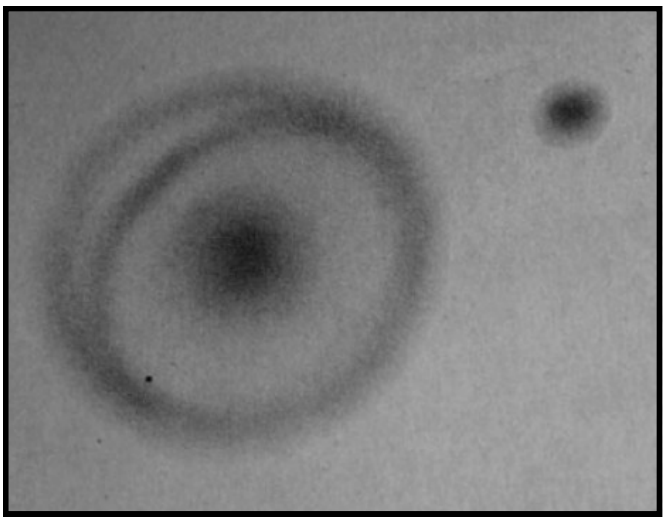
William Herschel had the best observation of M51 until 1845 and his sketch clearly shows a two lobed ring and two detached round nebulae. A curious object indeed.



So, until the spring of 1845 and the Leviathan was ready to begin its first observing run, M51 was well established as a ring nebula.

I've been aware of the Herschel sketch for several years and have duplicated this observation under poor conditions. I was surprised how easy it was to see a ring disconnected from its central nucleus just like in Herschel's sketch – even though I knew the spiral arms were there. I'd never seen the "ring" of M51 before but the first time I looked for it that's what I saw.

Interesting what can be seen when one is looking for it.

Lord Rosse's second preconception was that every nebula that didn't appear to be made up of stars most likely only required a larger telescope to be able to resolve them into stars. That had been the fairly consistent experience for astronomers since the invention of the telescope, and even though there was not universal agreement that this would always be the case, it was one of the dominant scientific views of the time. The Herschel's were proponents of this idea, giving it extra weight.

Lastly, the prime agenda of the initial observing run of the 72 inch in March 1845 was built around objects that Lord Rosse, South and Robinson thought could be resolved into stars, and that happened to include M51.

~ The discovery of spiral structure in M51 ~

The fascinating story of the first observations of M51 with the 72 inch has been wonderfully researched by many investigators. The few I've read are listed in the references section at the end of this article but there are many more. Although I may delve into this fascinating period in more detail someday, for now I feel I have a grasp on the basic facts that shed light on my questions and hypothesis.

Lord Rosse, South, Robinson and the brand new 72 inch Leviathan had first light on February 11, 1845 but the sky was hazy and their prime target, M42 was hidden by clouds. Robinson remarked "*Unfortunately, the whole month of February was of the worst astronomical character*." Furthermore, "*At length, when all hopes of Orion were lost in the twilight, the mirror was removed from the telescope, and polished on March 3rd*."

Their fortunes improved on March 4th when the weather turned clear for a good week and with a freshly polished speculum[2] the 72 inch was in top condition. South notes that "*The night of 5th March was, I think, one of the finest I ever saw in Ireland. Many nebulae were observed by Lord Rosse, Dr. Robinson , and myself… The most popularly known nebula observed this night were the* ***ring nebula*** (emphasis mine) *in Canes Venatici, or the 51st of Messier's catalogue, which was resolved into stars with a magnifying power of 548; and the 94th of Messier.*"

[2] Telescopes with speculum mirrors needed two sets of mirrors – while one was being used in the scope the other was being re-polished and re-figured so it would be ready to replace the in-use mirror as soon as it tarnished too much.

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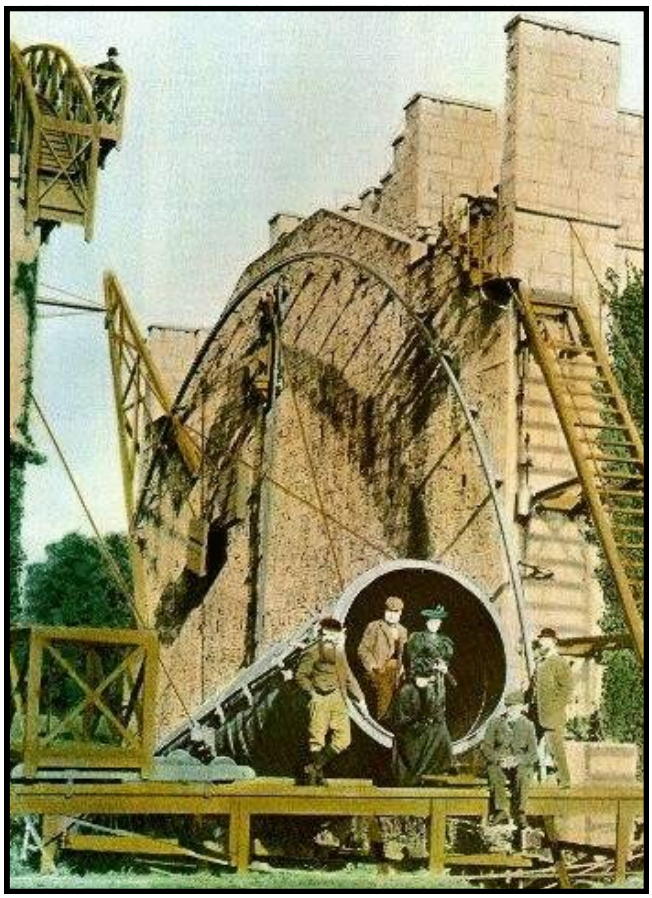
Robinson's report on M51 from the same observing run stated "*Here also the central nebula is a globe of large stars; as indeed had been previously discovered with the three feet telescope* (Rosse's 36 inch scope*); but it is also seen with 560 that the exterior stars, instead of being uniformly distributed as in the preceding instances, are condensed into a* ***ring*** (emphasis mine)*, although many are also spread over its interior.*"

So neither South or Robinson noticed the spiral structure of M51 in March 1845 as they both describe the overall shape as a ring. They saw exactly what they expected – a ring nebula resolved into stars.

There seem to be no surviving records of what Lord Rosse saw in March 1845, but in 1850 he wrote that: "*A 6-feet aperture so strikingly brings out the characteristic features 51 Messier, that I think considerably less power would suffice, on a very fine night, to bring out the principal convolutions*." That would seem to indicate that even a casual glance through the 72 inch would immediately and obviously present the spiral structure we are now so familiar with.

His son, Laurence, the 4th Earl of Rosse supports this view when he wrote in 1880 that "*1845, April. During this month M51 was for the first time examined with the 6 foot* (72 inch telescope) *and its spiral character was immediately noticed, but no record is left of these early observations*." This doesn't agree with the timing noted by South and Robinson, but it does agree with the timing of Lord Rosse's first sketch of M51, which may surprise you to not be the famous one that's usually presented as the discovery sketch. More on that is coming up.

Some researchers have speculated that Rosse, South and Robinson may have indeed seen the spriality of M51 at first glance in early March 1845, but since they were primarily concerned with the resolvability of the nebula that they didn't think it worth mentioning. I find it nearly impossible to imagine that three prominent astronomers would notice a new and completely unexpected form in M51 as seen through the worlds largest telescope and not make at least some mention of it in their notes.



If historical speculation is acceptable then my guess is that they <u>didn't</u> see the spiral arms in March 1845 but instead saw a ring nebula that had been resolved as reported in South and Robinson's notes. Preconception and high hopes are powerful forces in deciding what we see, not only through the eyepiece but in life in general. More on this later too.

For those that haven't seen M51 through a large telescope the issue of resolvability may also seem unbelievable. How can what we now know is a galaxy some 36 million light years away be resolved into stars by a 72 inch telescope? It took Edwin Hubble some seventy years later to resolve M31, which is only 2.5 million light years away, with a 100 inch scope.

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However, there are a fair number of faint foreground Milky Way stars arrayed across the face of M51, plus at high powers – 548x and 560x would be enough in steady seeing conditions – to spot many of the super star clusters and compact star clouds that appear stellar, especially near the core. I've "resolved" M51 with my 28 inch many times, and did so much more easily through the 90 inch Bok scope, so I have no problem believing that they also "resolved" M51 with the 72 inch Leviathan.

We shift now to April 1845 and Lord Rosse's very first sketch showing the spiral structure. What happened in one month that led from a ring nebula that had been resolved into stars, to the discovery of spiral structure? I'll explore the possibilities in Part II of this paper.

Lord Rosse first showed his M51 sketch at the June 1845 meeting of the British Association for the Advancement of Science (BAAS) meeting where his discovery of spiral structure was loudly proclaimed as a major find. To my great surprise, it wasn't the famous sketch that he showed, but a finished version of a working sketch he started at the eyepiece. Happily, both these first sketches survive and we'll examine them next month in Part II as well as how the famous drawing – which is an engraving published in 1850 - came to look the way it does in Part III in the following month.

References

The Rosse Spirals, David W. Dewhirst, Institute of Astronomy, University of Cambridge, and Michael Hoskin, Churchill College, Cambridge, 1991

Unwinding the Discovery of Spiral Nebulae, ME Bailey, CJ Butler and JM McFarland, 2006

The Leviathan and the Whirlpool Nebula**,** Trevor Weekes, Harvard-Smithsonian Center for Astrophysics, 2009

Observation, working images and procedure: the 'Great Spiral' in Lord Rosse's astronomical record books and beyond, Omar W. Nasim, ETH-Zurich. British Society for the History of Science, 2010

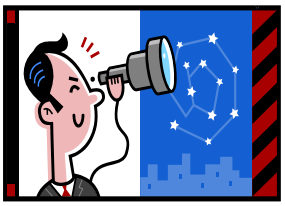
Special thanks to Peter Abrahams for his sage advice and helpful suggestions.

Astronomy Term of the Month

Field of view (FOV)

The area made visible by the optical system of an instrument such as a telescope at a particular setting. It is expressed as a form of its angular diameter. The field of view of a telescope usually increases with decreasing magnification and depends on the eyepiece used. A wide field may be obtained with specially designed eyepieces or telescopes.

There are two fields of view associated with a telescope. One is the true field of view. This is a measure of the actual area of the sky that the telescope optics sees. The other is the apparent field of view. This is the angular diameter of the circle of light provided to the eye by the eyepiece.



WARNING! Math equations to follow. WARNING!

The true field can be approximated using the formula:
TFOV = AFOV ÷ Magnification
Here is an example based on my telescope and eyepiece:
Telescope = 1500mm focal length
Eyepiece = 17mm focal length with an apparent field of view of 82º
Magnification = 1500 ÷ 17 = 88x
TFOV = 82 ÷ 88 = 0.93º or nearly a full degree of sky.

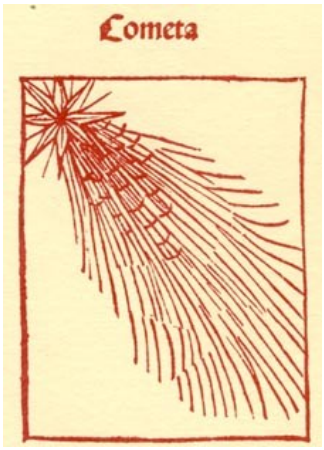
Of course with the web enabled world there is no need to strain the brain. Just type "telescope field of view calculator" into Google to find numerous online or spreadsheet based calculators.

Comet Code: Understanding How Comets are Named

October, 2010

By Tom Koonce

Two hundred years ago, the discoverer of a prominent comet usually had their name incorporated into the official name of the object, but not always. The first named comet was Halley's Comet, named after Sir Edmund Halley who had calculated its orbit and made the discovery that it was a regular visible visitor to the inner solar system. The comet is now officially known as Comet Halley. The name credit for the comet 2P/Encke, discovered in 1786 by Pierre Méchain, was given to the man who calculated its orbit, Johann Franz Encke. If the comet was exceptionally bright and non-periodic, they were known as "The Great Comet of…" followed by the year in which they were observed.



Woodcut thought to represent Halley's Comet dated 684 A.D.

The naming of comets became standardized in the early twentieth century, retaining the names of up to the first three independent discoverers. Comet White-Ortiz-Bolelli (formal designation C/1970 K1) was named for its discoverers amateur astronomer Graeme White, Air France Pilot Emilio Ortiz, and professional astronomer Carlos Bolelli. More recently, comets have been discovered by robotic space-borne instruments, and the instrument's name is included like Comet IRAS-Araki-Alcock (C/1983 H1), discovered by a team of scientists using the Infrared Astronomical Satellite (IRAS), and two amateur astronomers, George Alcock and Genichi Araki.

The "Old Style" of naming comets gave them a provisional designation of the year of their discovery followed by a lower case letter indicating its order of discovery in that year. Comet Bennett is designated Comet 1969i, the 9th comet discovered in 1969. This worked well until 1987 when more than 26 comets were discovered in a single year. The alphabet was used again with a "1" subscript (Comet Skorichenko-George, 1989e1). In 1989, the count got as high as 1989h1 with 34 comets discovered that year. Once the orbit had been established, the comet was given a permanent designation in order of time of closest approach to the Sun, consisting of the year followed by a Roman numeral. For example, Comet Bennett (1969i) became 1970 II.

More and more comets began to be discovered and the naming procedure became unwieldy, so in 1994 the International Astronomical Union (IAU) approved a new naming system called the "New Style". Using the New Style, comets are designated by the year of their discovery followed by a letter indicating the half-month of the discovery. "A" denotes the first half of January, "B" denotes the second half of January, "C" denotes the first half of February, "D" denotes the second half of February, etc., and a number indicating the order of discovery. As an example, the third comet discovered in the second half of October 2010 would be designated 2010 U3. "I" and "Z" are not used when describing the half of a particular month the comet was discovered because they can be easily confused as the numbers 1 and 2 respectively.

Photo of C/2009 R1, (Comet McNaught, discovered September 9, 2009 by Robert H. McNaught)
Photo Credit: Ria Novosti

Prefixes are also added to indicate the nature of the comet, with" P/" indicating a periodic comet, "C/" indicating a non-

(Continued on page 11)

(Continued from page 10)

periodic comet, "X/" indicating a comet for which no reliable orbit could be calculated (typically comets described in historical chronicles), "D/" indicating a comet which has broken up or been lost, and "A/" indicating an object at first thought to be a comet but later reclassified as an asteroid. Periodic comets also have a number indicating the order of their discovery. Thus Halley's Comet, the first comet to be identified as periodic, has the systematic name 1P/1682 Q1. Comet Shoemaker-Levy 9 was the ninth periodic comet jointly discovered by Carolyn and Eugene Shoemaker, and David Levy but its systematic name is D/1993 F2. It was discovered in 1993 and the prefix "D/" is applied, since it was observed to break up and crash into Jupiter. *(Ref. http://wapedia.mobi/en/Astronomical_naming_conventions?t=8.)*

Photo of C/1995 O1, (Comet Hale-Bopp, discovered July 23, 1995)

Now you can decode the name designations of comets. Stars are another story altogether… For example, Betelgeuse = Alpha Orionis = HR 2061 = BD +7 1055 = HD 39801 = SAO 113271 = PPM 149643, whose coordinates in the sky are RA 05:55:10.306, Dec +07:24:25.35 (2000.0), the bright red supergiant in Orion. There is a system determined by the IAU for naming all astronomical objects. It just takes some time and study to make sense of it.

2011 Starlight Parade Float Design Contest

Rose City Astronomers have entered a float in the Starlight Parade two years in a row, 2009 – 2010, and we would like to make a particularly nice entry for 2011.

We are offering a contest for RCA members to design a parade float. Entries will be solicited until the November, 2010 general club meeting. The winning design will be announced at the December, 2010 potluck dinner.

Designs should be submitted on paper, as a drawing, and include written explanations. Your entry in the contest should include:

1. a proposed theme,
2. a proposed design and
3. a proposed construction plan.

Be sure to include your name and contact information.

The requirements for the float design are a mix of Rose Festival requirements and our own. These requirements are posted on the Forum.

The winner of the contest receives the following prizes:

- ☆ Their name will be included in the script that is delivered by the announcers as the float passes the grandstand.
- ☆ They may ride the float in the parade.
- ☆ They may be a judge in the following year's design contest.

The judges in this year's contest will be Greg Rohde, who designed the 2010 float, David Nemo, who oversaw much of its building, Margaret McCrea, agent provocateur, and Sameer Ruiwale, president of RCA.

The judges may not select any of the designs if in their opinion none of the submissions would be suitable for the event. The judges also may modify the design during the planning and construction phases, in consultation with the designer, in order to accommodate any contingency that may arise.

For questions or more details, contact any of the above named judges.

BOARD MEETING MINUTES
August 2nd, 2010 7pm
OMSI Classroom 2
Duncan Kitchin

Board Members Present

Sameer Ruiwale (President)
Ken Hose (VP Membership)
Matt Vartanian (VP Observing)
Dawn Willard (VP Community Affairs)
Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Howard Knytych (New Member Advisor)
Jan Keiski (Library Director, OMSI & GAMA Liaison)
Greg Rohde (Telescope Library)
David Nemo (Observing Site Director)
Scott Kindt (Newsletter Editor, SIG Director)

Call to Order

The meeting was called to order at 7:07 by Sameer Ruiwale and, there being 10 of board members present, the quorum requirement of 10 was declared to be met.

Approval of Agenda

Motion to approve the agenda. Moved: Howard Knytch, Second: Greg Rohde. The agenda was approved by unanimous consent.

Approval of Minutes

Moved: Approve minutes from the July 2010 board meeting. Moved: David Nemo, Second: Matt Vartanian. Passed by unanimous consent.

Directors' Reports

- Secretary's Report – On leave.

Treasurer's Report – Larry Godsey. We are at the beginning of the new membership year (July 1). Books on last year not closed yet. It has been a slow month. See web site for details.

- VP Programming – Matt Brewster. Absent.
- VP Observing – Matt Vartanian. Matt presented a draft observing schedule for 2011. Camp Hancock is already scheduled for April 29 next year with a Sept 23rd request pending.
- VP Community Affairs – Dawn Willard. Nominal.
- Media Director – Diana Fredlund. Absent.
- VP Membership – Ken Hose. We had 12 new members and 49 renewals resulting in a total of 181 member-families for the membership year started July 1. The total dues received in August were $1,462.
- New Member Advisor – Howard Knytych. There was a new member meeting last month with about 12 to 15 attendees. Duncan Kitchin and David Haworth talked about DLSR imaging. Howard thought the presentation was well done. AR: Ken Hose to propose a cheap mount for the club to purchase to be used for DLSR imaging.
- Sales – Larry Froberg. Absent
- Book Library – Jan Keiski. Nominal
- Telescope Library – Greg Rohde. We had a donation of a 12" LX200 that is probably too big for the library. There was a discussion about what to do with the scope. Donate it to OSP? Raffle it off? Put it on Astromart and donate to site fund? It will be kept at TMS for now until we decide what to do with it. Also, a 10" Meade is too big and we should handle it the same way as the 12". It was decided that we need a mount for the PST. AR: Sameer Ruiwale and Greg Rohde to look into getting an appropriate mount.
- IDA – Dawn Nilson. Absent.
- Magazine Subscriptions – Larry Godsey. Nominal.
- Webmaster – Larry Godsey. Folks will get a reminder to renew their RCA dues when logging on to the forum if they have not already renewed.
- Site Committee – David Nemo. David suggested we donate telescope sales to the site fund.
- Youth Director: Jean London. Absent
- SIGs – Scott Kindt. Nominal. No progress on starting up the proposed Lunar SIG—we need a dedicated owner.
- Alcor – Dale Fenske. Absent.
- OMSI –Jan Keiski. September meeting will be in the planetarium. The annual OMSI/RCA agreement has been signed.

Sister Club update – Jan Keiski. Leo Cavagnaro is visiting from GAMA.

Old Business

- Calendar. We are still looking for astro photos for the calendar. We still need an update on costs for the project.

Think-Out-Loud. AR Howard Knytych to represent RCA if and when we get this off the ground. Matt Vartanian found the name of the lighting guy from Hillsboro whom we would like to recruit as a panelist. AR Diana Fredlund to pitch this idea to the radio station.

New Business

- Elections. We need to form an election nominating committee whose responsibility is to create a field of candidates for RCA for our annual elections. We require 3 board members and 3 members from the general membership to form the committee. Howard Knytych, David Nemo, and Greg Rohde volunteered for the RCA board. AR: Committee to find 3 members from the general membership.

Leo Cavagnaro's visit. There was discussion on how to recognize his visit at the general meeting in September. The question was left open-ended.

Adjournment

There being no further business, the meeting was adjourned.

Oct 2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Downtowners Luncheon Kell's Noon	2
3	4 7pm Board Meeting OMSI Parker Room	5	6 New Moon	7 Sunriver Star Party	8 Camp Hancock Star Party Sunriver Star Party	9 Camp Hancock Star Party Sunriver Star Party
10 Camp Hancock Star Party Sunriver Star Party	11 7pm Astro Imaging SIG Beaverton Library	12	13 First Quarter Moon	14	15	16
17	18 7:30pm General Meeting OMSI Planetarium	19	20 Cosmology SIG Linus Pauling Cntr 7pm	21 Full Moon	22	23 10am - 3pm Telescope Workshop 3pm Science SIG
24	25	26	27	28 Third Quarter Moon	29	30
31						

November 2010

November 1	Monday	Board Meeting	OMSI Parker Room	7pm
November 5	Friday	Downtowner's Luncheon	Kell's	Noon
November 8	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
November 15	**Monday**	**General Meeting**	**OMSI Auditorium**	**7:30pm**
November 17	Wednesday	Cosmology SIG	Linus Pauling Center	7pm
November 20	Saturday	Telescope Workshop	Swan Island	10am-3pm
November 20	Saturday	Science SIG	Swan Island	3pm

The RCA General Meeting falls on the third Monday of each month. We usually meet in the Auditorium at OMSI, next to the Murdock Planetarium. Occasionally the meeting is held in Murdock Planetarium. Check the RCA web site for the latest information.

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 22, Issue 11 Newsletter of the Rose City Astronomers November, 2010

RCA MONDAY NOVEMBER 15 GENERAL MEETING

TECHNICIAN CLEARY: “Transporter room, come in! Urgent!”, “Redline on the transporters, Mister Scott!”

Mr. SCOTT: (Mr. Scott whirls to a console fast, speaks urgently!) “Transporter room, do not engage! Do not....”

TECHNICIAN CLEARY: (reacting to a reading; interrupts) “Too late; they're beaming now!”

CHIEF RAND:(into intercom) “Starfleet, override us! OVERRIDE...! We’re losing the pattern! Yank them back!” Suddenly, from Rand's console a Violent Glare, Protesting Sound from the circuitry, and a flashing red-warning light.

STARFLEET VOICE: “Unable to retrieve their pattern, Enterprise....!”

Ladies and gentlemen, due to unforeseen circumstances, our guest speaker for this month has not yet materialized. Please see the RCA web site at www.rosecityastronomers.org for the next arriving transport shuttle.

All are Welcome! Monday November 15

Social Gathering: 7 pm. General Meeting Begins: 7:30 pm. Location: OMSI Auditorium

In This Issue:

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

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
Oct 6, Nov 5	Oct 13	Oct 21	Oct 28

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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@rosecityastronmers.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>

Local Happenings

Election of Board Members

Annually the RCA members must elect members to serve on the Board of Directors. A nominating committee consisting of Howard Knytych, David Nemo, Greg Rohde, Michael Minnhaar, John DeLacy, and Brian Wilson has been established.

The elected offices and current officers are as follows:
President, Sameer Ruiwale
Vice President - Members, Ken Hose
Vice President - Observing, Matt Vartanian
Vice President - Community Affairs, Dawn Willard
Vice President - Communications, Matt Brewster
Treasurer, Larry Godsey
Secretary, Duncan Kitchin

All these officers have indicated their willingness to continue to serve in their current capacities.

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 prior to the elections at the November general meeting.

These candidates were announced at the October general meeting. 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.

Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, November 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: Saturday, November 20th, 3:00pm
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 3rd, 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 15th, 6:30pm
Location: OMSI Planetarium
Topic: Winter Observing Tips
SIG Leader: Howard Knytych
Email: newmembers@rosecityastronomers.org
http://www.rosecityastronomers.org/sigs/new_members.htm

Telescope Workshop

When: Saturday, November 20th, 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 17th, 7:00pm
Topic: To Be Announced
Presented by: To Be Announced
Location: Linus Pauling Complex,
3945 S.E. Hawthorne St., Portland.
SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm

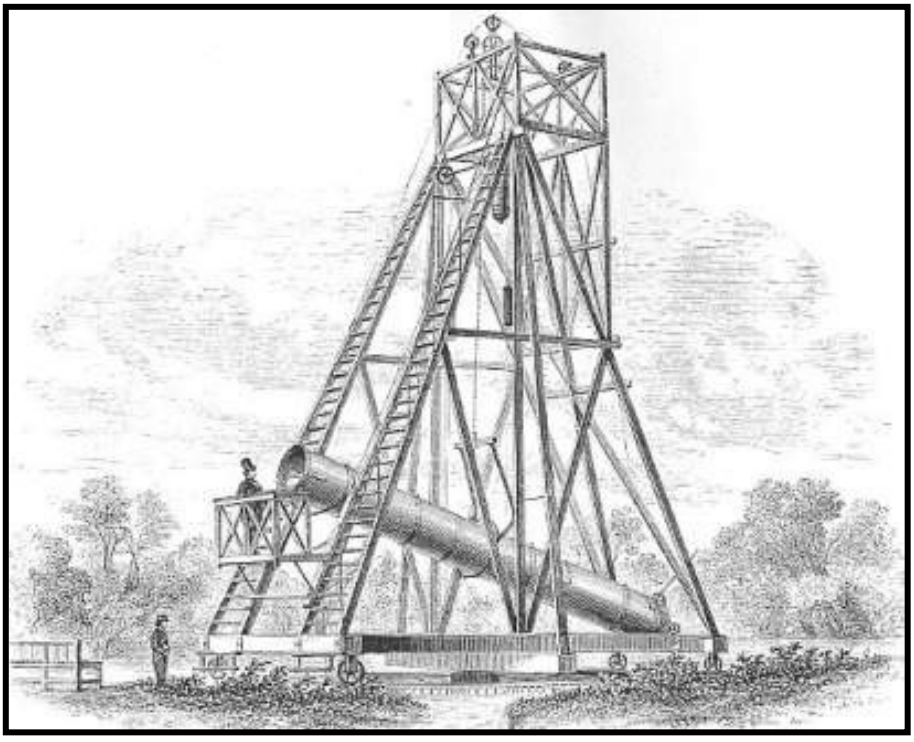
The Whirlpool, Lord Rosse and the Nature of Visual Observation - Part II

~ The early sketches ~

I'm fairly certain than neither Sir James South or Rev. Romney Robinson saw the spiral shape of M51 in March 1845 but since we have no written records of what Lord Rosse saw at that time we can't say anything certain about his first observations. As it was, just a few weeks later, he makes a sketch clearly showing the spiral arms so he obviously got past what he expected to see and noticed what was actually presented in his eyepiece.

This isn't always as easy or as straightforward as it might seem. In 1845 Lord Rosse was 45 years old and an experienced observer. Years before him, William Herschel had seen and sketched M51 as ring nebula through his telescopes, and as Lord Rosse had seen it as such in his smaller telescopes he fully expected that the shape of M51 was established.

This reminds me of the first time I saw the Horsehead Nebula. I had a clear notion of what it should look like and how large it would appear in the eyepiece of my telescope. But I failed to see it several times before suddenly seeing that it was much larger and more diffuse than expected - I was looking for a tiny thing, not the large dark ghost that it really appears as. I had been looking right at it and didn't see it until my perspective changed, and suddenly I could see it surprisingly well. I imagine Lord Rosse having a similar "ah ha!" moment with M51. I wonder what his immediate reaction was?



Regardless, his first publicly shown sketch of M51 is dated April 1845. As it turns out, this sketch was actually a finished version of a working drawing that he began on his 36 inch telescope[3], seen at right. He began with the smaller scope to lay out the general proportions of M51 for two reasons.

First, the 36 inch was mounted ala Herschel and could track the sky for a much longer period of time than the 72 inch could, and secondly it had a much wider field of view. The 72 inch could track for about 60 minutes and was used to fill in the details.

This suggests another possibility regarding the discovery of the spiral arms. As Lord Rosse began to fill in the details of his M51 sketch with the 72 inch he paid closer attention to what he was actually seeing, and bam, the spiral arms finally jumped out. The act of sketching can do that.

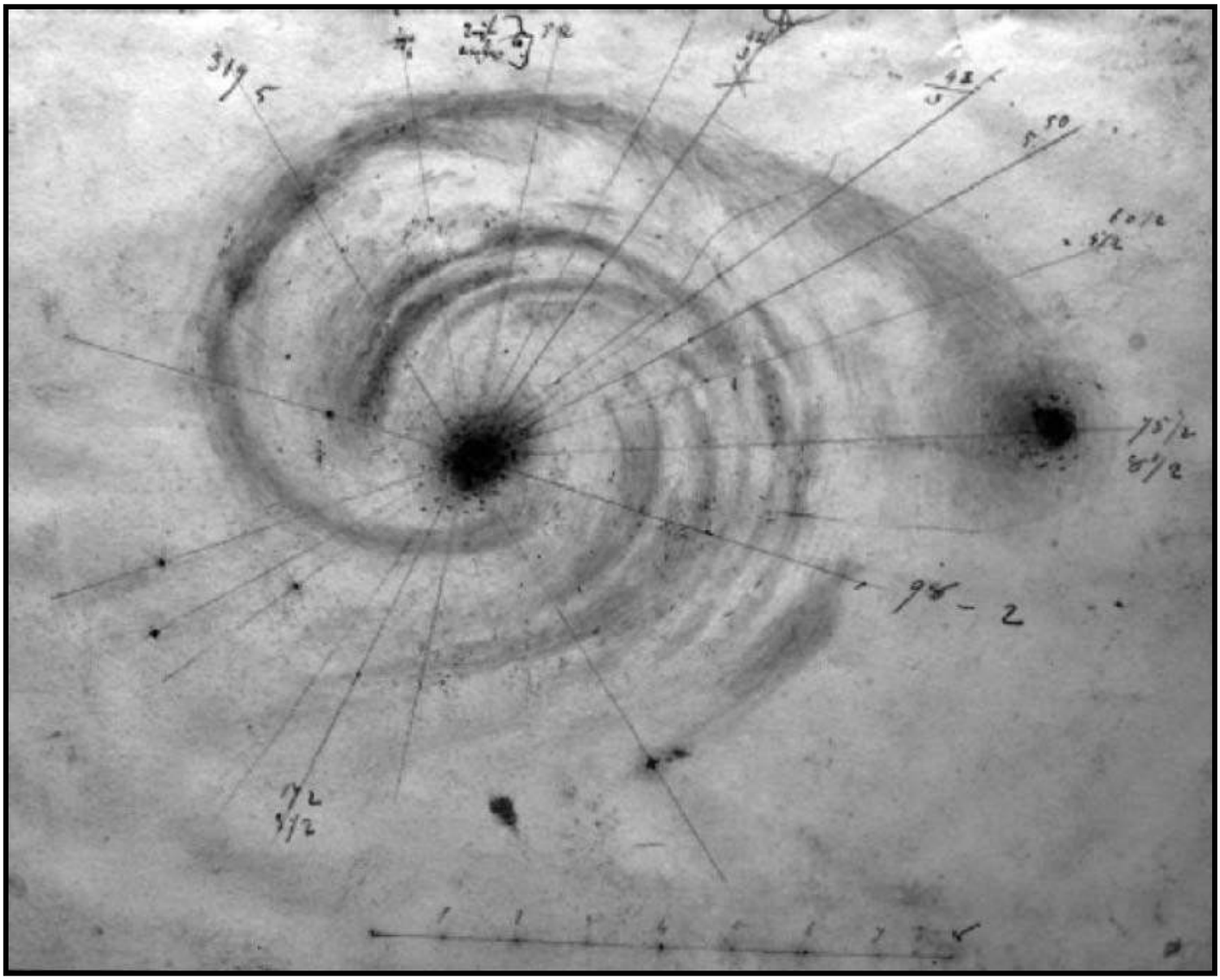
(Continued on page 5)

[3] The 36 inch speculum mirrors had, when freshly polished, the same light gathering ability of a modern 17 inch Newtonian.

(Continued from page 4)

So the April 1845 working sketch shown below – the very first of M51 using the 72 inch telescope - had a definite procedure and was meant to be used to make a separate finished sketch. Note the radial lines from the main nucleus and the scale at the bottom of the drawing, both tools to help get the overall proportions and locations of the stars as correct as possible. A real attempt was made with this sketch, and of astronomical sketches in general of this period, to accurately portray nebulae so that over time it might be possible to detect changes. [4]

More than that, this first sketch has a sense of immediacy and accuracy that the famous sketch doesn't have – this image best shows what Lord Rosse actually saw in April 1845. I'll compare this sketch to mine and both to a modern photograph in part 3 of this paper.



The April 1845 M51 working sketch, made before the first public display drawing. From the Birr Castle Archives, L-binder, p.581.

(Continued on page 6)

[4] This turned out to be futile on several counts. There's a wide spectrum of sketching ability among astronomers, instruments and observing conditions vary wildly, perceptions change over time, and drawing in the dark is just plain difficult.

(Continued from page 5)

~ Wild Speculations ~

Given that magnifications of 548 and 560 are noted by South and Robinson, it follows that they were using 30mm and 29mm Ramsden eyepieces. They would have had a narrow apparent field of view, around 35 to 40 degrees, which is more speculation on my part but grounded in the reality of what was available in 1845.

The wider field Kellner and Plossl eyepieces are a few years into the future so in 1845 Lord Rosse was likely using eyepieces based on the Ramsden design. They would have provided sharp images in his f/9 Leviathan, but at 548x and 560x the field of view would have been tiny, right around 4 arc minutes and would have produced a 3.2mm exit pupil.

M51's apparent size is about 11 by 7 arc minutes, much larger than the true field of the eyepieces used to resolve M51…

…So it's irresistible to speculate how the field of view influenced the visibility of the spiral structure. A narrow field of view would have made this much more difficult, and could explain why Rosse, South and Robinson didn't notice the spiral shape during the first observing run in March 1845. They wouldn't have been able to see enough of it at one time to notice, and since they already knew M51 to be a ring nebula and their goal was to resolve it into stars they would have favored high power, narrow angle views.

The only reference I found (see The Rosse Spirals) that specifies actual eyepieces used with the 72 inch scope dates to 1874. It quotes a magnification of 216x and a true field of view of 13.4 arc minutes for the "Finder" eyepiece – large enough to comfortably fit all of M51 into the field of view. It's focal length was 3 inches (76mm) and since the apparent field of view works out to be approximately 48 degrees it was probably a Plossl eyepiece, and so it could not exist in March/April 1845.

But the brand new 72 inch must have had a comparable eyepiece in 1845, otherwise the telescope would have been nearly impossible to point at anything reliably. Assuming a Ramsden-like 40 degree apparent field of view and the same focal length (76mm) for the 1845 finder eyepiece, the true field of view would have been right at 11 arc minutes, still large enough to see all of M51. This is just a guess on my part though.

Perhaps Lord Rosse used the finder eyepiece more in April 1845, when he was observing alone, than in March when observing with South and Robinson. Just more speculation but it's easy to imagine something like this happening: Lord Rosse had the scope to himself in April and perhaps felt that since M51 had already been resolved that he could step back and soak up some low power views while working on his sketch. The act of sketching wonderfully focuses ones attention on what's actually available to be seen in the eyepiece, so in combination with the wider field of view it was inevitable that he'd see the spiral structure of M51.

Or maybe he had a notion of M51's interesting structure from March and now had the time to check it out more thoroughly and document what he saw. In either case, M51's spiral arms are much more apparent at 216x than they are at the 548x or 560x with the tiny field of view used in March 1845. Also, I should note that since he was observing alone in April 1845 that he was the only one who could have made the first sketch.

The finished sketch Lord Rosse presented at the June 1845 BAAS meeting is shown below. Already it has a more stylized look than the first working sketch. However, I rather like that it's been folded as it's easy to imagine Lord Rosse doing so to fit it in his coat pocket. Regardless, the sketch was a sensation and stimulated an ongoing scientific debate on the nature of the spiral form. Was it a distant "brother system" (an external galaxy) as William Herschel had been proposing, or was it proof of the "nebular hypothesis" which represents the formation of a separate solar system?

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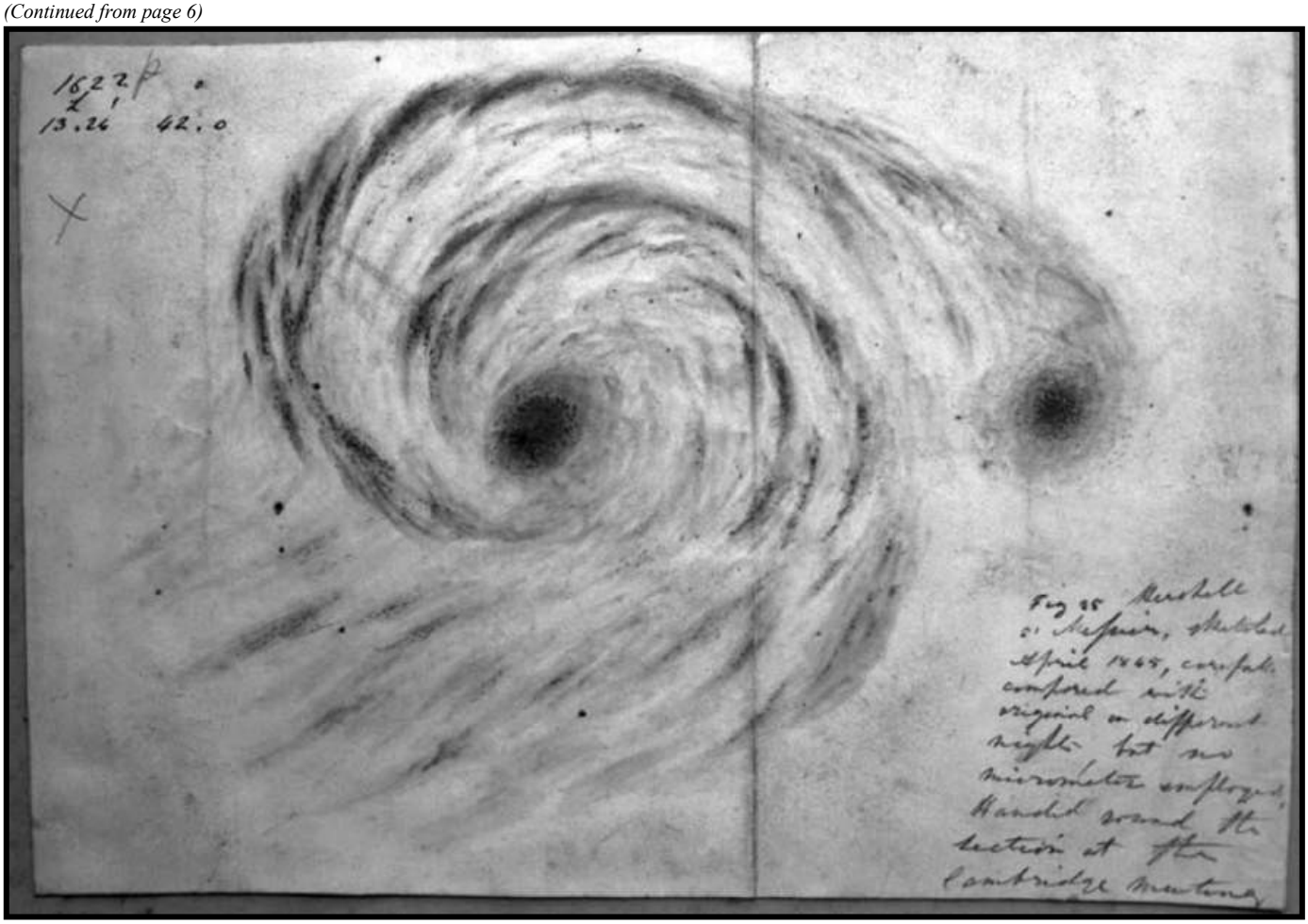

Lord Rosse M51 sketch, April 1845, 72 inch f/9. This is the sketch he passed around at the June 1845 British Association for the Advancement of Science (BAAS) meeting in Cambridge. The hand written caption reads: "Fig 25 Herschel 51 Messier, sketched April 1845, carefully compared with original on different nights, but with no micrometer employed. Handed round the Section at the Cambridge meeting."

The finished sketch shows some differences from the working sketch, which to me look more like stylized variations than realistic ones. It's tempting to speculate that the revisions were done to make the sketch more suitable for showing at the June BAAS meeting but I've found nothing suggesting this is the case. April through June is prime time to observe M51 so perhaps the differences are explained by Lord Rosse merely trying to make his sketch more accurate. I don't know.

Still, the sketch shown at the June 1845 BAAS meeting quickly caught the public imagination, as it was presented as a positive image in John Pringle Nichol's Thoughts on Some Important Points Relating to the System of the World, published in 1846. This was a book intended for the general public - it was not a scholarly work. Why this engraving didn't become the iconic discovery image I have no idea.

Even so, printing the first public sketch of M51 as a positive image – that is a bright M51 on a black background – was the first time a nebula was presented this way. It generated some excitement of its own as there was an ongoing debate among astronomers of how to best display what had been seen at the eyepiece, and this added fuel to the argument of realism.

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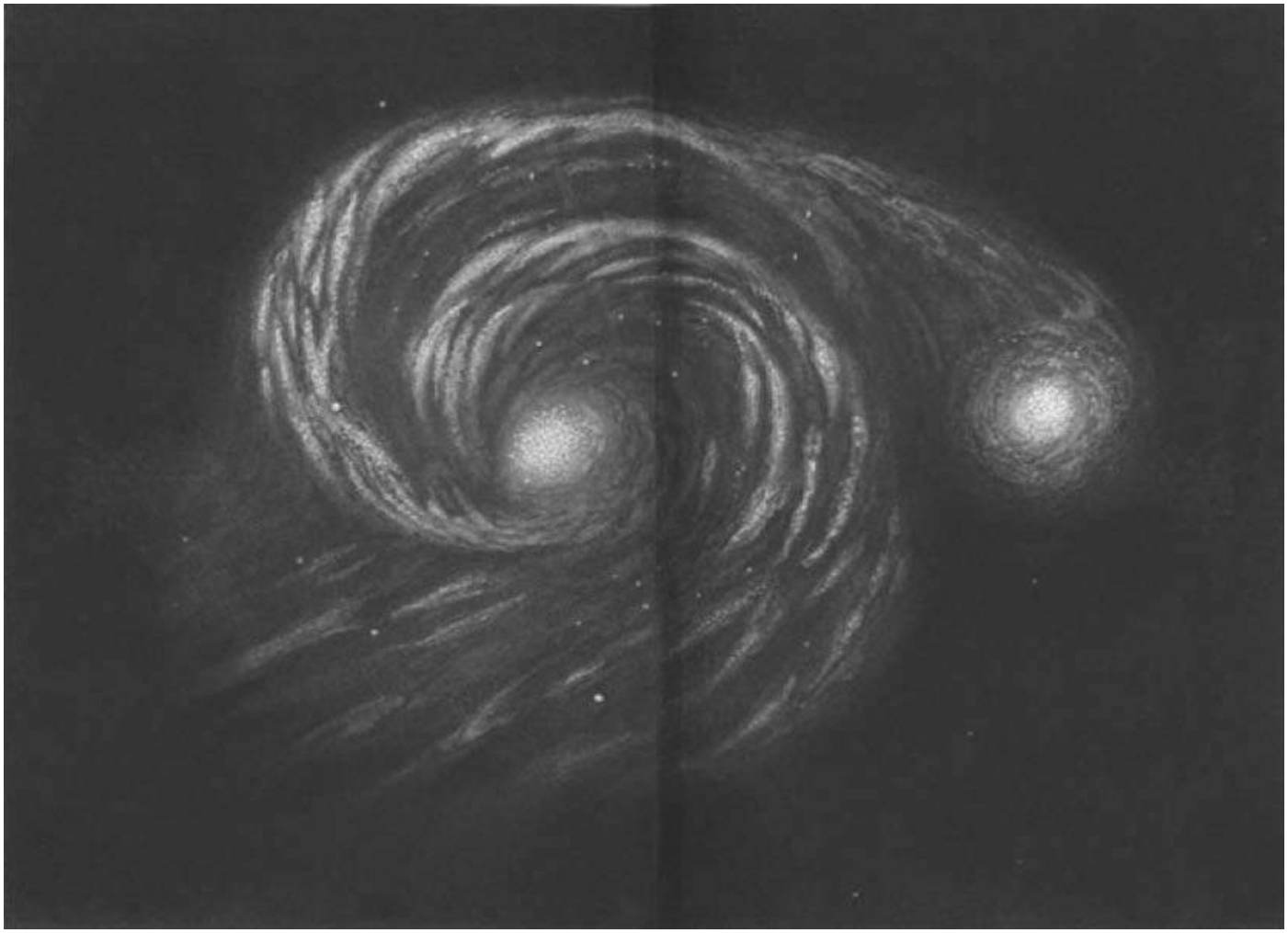

The white on black positive engraving of Lord Rosse Cambridge sketch as printed in John Pringle Nichol's Thoughts on some Important Points Relating to the System of the World in 1846. Note the slight differences from the Lord Rosse June 1845 BAAS sketch.

But the realities of 19th century astronomical sketching - it's much easier to sketch in the dark at the eyepiece using white paper - and the printing processes of the time dictated that most nebulae sketches remained negatives; dark nebula on a white background.

References

The Rosse Spirals, David W. Dewhirst, Institute of Astronomy, University of Cambridge, and Michael Hoskin, Churchill College, Cambridge, 1991

Unwinding the Discovery of Spiral Nebulae, ME Bailey, CJ Butler and JM McFarland, 2006

The Leviathan and the Whirlpool Nebula, Trevor Weekes, Harvard-Smithsonian Center for Astrophysics, 2009

Observation, working images and procedure: the 'Great Spiral' in Lord Rosse's astronomical record books and beyond, Omar W. Nasim, ETH-Zurich. British Society for the History of Science, 2010

Special thanks to Peter Abrahams for his sage advice and helpful suggestions.

THE CIRCUMPOLAR KINGDOM OF CASSIOPEIA

Unlock the splendor of bright deep-sky objects in the northern constellation with a classic Sears Discoverer refractor telescope.

By John W. Siple

Signature constellations of autumn have always included Cassiopeia, the Lady of the Chair. Occupying a position on the other side of the celestial pole from the Big Dipper, this familiar W (or M) pattern of five bright stars is circumpolar, remaining visible throughout the year in northerly latitudes. As the sky rotates westward the regal Queen never sets, guarding her sidereal realm from dusk until dawn.

Ancient Greek myth relates that she was the attractive wife of Cepheus, King of Ethiopia, and the mother of Andromeda. One day the queen boasted that both she and her daughter were more beautiful than the sea nymphs, a claim that angered their patron god Poseidon.

The maddened sea god quickly responded by sending a torrent of water to the African kingdom, and summoned Cetus to ravage the coast. He further decreed that Andromeda be sacrificed as tribute and prey to the monstrous whale. Fortunately, the chained princess escaped her cruel fate through the bravery of Perseus, who was overwhelmed by the young monarch's loveliness.

On her death the vain queen was placed in the sky and is now doomed, as additional punishment, to circle the pole for all eternity, upside down. In the late evening hours of November starry Cassiopeia can be seen toward the northwest high above Polaris, appearing as a conspicuous flattened "M" in the glowing band of the Milky Way.

For deep-sky hunters, Cassiopeia contains several of autumn's finest open clusters: the brilliant, owl-shaped group NGC 457 situated near Phi (φ), and the impossibly rich NGC 7789. Other particularly striking collections of physically associated suns are the bright Messier objects M52 and M103, both easily located targets when conducting a systematic scan of the region.

Careful observation of the constellation's many spectacular deep-sky treasures was carried out by using a mixed trio of classic 3-inch f/16 refractor telescopes, each one a top-quality instrument from Sears, Roebuck and Co. (See the table below.)

Known as "Discoverer" brand telescopes, they were offered from 1961 until about 1974 at an individual cost of several hundred dollars. These imported instruments were designed to withstand the rigors of repeated use and when trained skyward, capable of giving first class star images.

Telescopes for domestic use and overseas sales were produced in workshops located around Tokyo, Japan. Astro Optical Industries Co. Ltd., in particular, manufactured some of the best 3-inch equipment for eventual worldwide distribution by Sears.

A broad spectrum of bold colors and distinctive tints characterize the metal optical tubes. Depending on the time period and source, colors can vary from dull gold, a hue placed by Sears Tower on its early 1960's model 6335, to a bluer tone displayed on Scope's 2515/2535 and SYW's 6344.

Prized by numerous collectors are the silver-gray Discoverers bearing a Royal (Astro Optical) stamp or logo. This cleanly designed and highly promoted

The rare Sears Discoverer motorized observatory model from 1964-65 is a rather cumbersome-looking but top performing instrument. Pictured is an elegantly restored example by Thomas H. Faller.

76mm f/16 refractor, listed in Sears' annual catalogs as model 6339-A, was marketed exclusively from 1965 through 1969. Thousands were sold nationwide, making it one of the most popular telescopes of the Apollo era.

To the chagrin of a few devoted amateurs, it was replaced at the end of its

The celestial objects listed in the following table were culled from many different sources. This small reference collection includes a host of good candidates for owners of 2.4- and 3-inch telescopes. Not shown are diffuse nebulae or other challenging targets.

Interesting open clusters and double stars					
Object	**R.A. (2000.0)**	**Dec.**	**Mag(s).**	**Size/Sep.**	**Model Used**
η Cas	$00^h\ 49.1^m$	+57° 49'	3.4, 7.5	12.9"	6339-A
NGC 457♦	$01^h\ 19.1^m$	+58° 20'	6.4	13'	6336
M103	$01^h\ 33.2^m$	+60° 42'	7.4	6'	6339-A
NGC 663	$01^h\ 46.0^m$	+61° 15'	7.1	16'	6336
ι Cas◙	$02^h\ 29.1^m$	+67° 24'	4.6, 6.9, 8.4	2.5", 7.2"	6344
M52	$23^h\ 24.2^m$	+61° 35'	6.9	13'	6339-A
NGC 7789	$23^h\ 57.0^m$	+56° 44'	6.7	16'	6344
σ Cas	$23^h\ 59.0^m$	+55° 45'	5.0, 7.1	3.1"	6344

Notes:

♦ NGC 457 is also called the Owl Cluster.

◙ Iota is a fine but difficult triple star, its components representing the consecutive spectral classes of A, F, and G. All three stars lie at a distance of 140 light-years.

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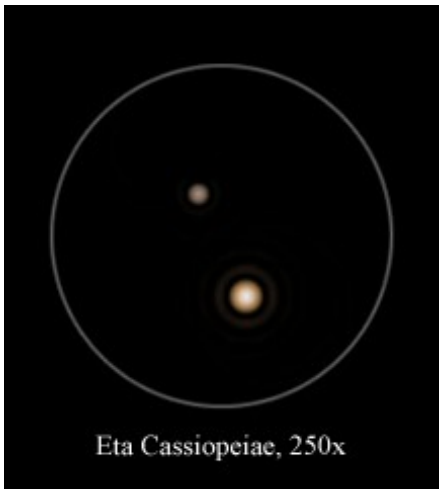
successful reign by Yamamoto Seisakusyo's (SYW's) modified 6344 refractor telescope. In performance, the edge often goes to the earlier silver-gray model from competitor Astro Optical.

One of the most unusual models is a tall pedestal version that has many of the same basic features as the 6339-A. Advertised as a Sears Tower product for only for a few short years in the mid-1960s, the model 6336 or "Professional-Type Motorized Observatory" is a seldom seen but highly desirable Discoverer telescope.

Our program of deep-sky observing begins at the double star Eta (η) Cassiopeiae, also known by its Arabic name Achird. It is a beautiful contrasting pair of 3.4 and 7.5 magnitude stars separated by a wide 12.9", and can be spotted by the naked-eye less than 2° northeast of Schedar. The primary, classified as spectral class G0, resembles Earth's sun in diameter, temperature and luminosity, while the companion is a late stage red dwarf of type M0.


Eta Cassiopeiae, 250x

At a distance of only 19.4 light-years, it is one of Sol's closest neighbors. Achird's double suns form a genuine binary, orbiting each another through a mutual gravitational grasp. A complete revolution around a common center of gravity takes about 480 years, during which time their true separation ranges from 35 to 110 astronomical units.

Sir William Herschel discovered this fine pair in 1779, his experienced eyes perceiving the colors of the two stars as white and garnet. Since that time other double star observers have reported slightly different stellar blends, including various shades of yellow and brown.

Eta's confusing hues often merge into a single solid combination when looking through a well-corrected instrument. With a Sears Discoverer 3-inch telescope (6339-A) at 250x, the brighter star is seen as a pale straw yellow and the dimmer attendant as a reddish purple, in good agreement with the anticipated spectral colors.

One of the prime examples of a multiple star is 4th-magnitude Iota (ι) Cassiopeiae, found by edging your Sears glass approximately 5° northeast from Epsilon (ε) Cassiopeiae. Telescopically the triple star is a treat, forming a little asterism in the shape of an obtuse triangle, very lovely and compact.

The 4.6-magnitude white primary has a lilac colored 6.9-magnitude secondary 2.5" to the southwest and a bluish 8.4-magnitude tertiary 7.2" to the east-southeast. It takes about 92x to comfortably split the wider two components in a Sears Discoverer 6344 refractor, while the third, closer star requires a minimum of 250x for a clean split.

Iota Cas A is also a carefully measured spectroscopic binary with an orbital period of 47 years. An imaginary planet found in the system's habitable zone would be subjected to constantly changing tidal forces, resulting in accelerated tectonic activity and a warped, deeply fissured landscape.

Because we are touring the Milky Way far from the galactic center, a sweep of the area will show a pleasing amount of open clusters. Just beyond the normal naked-eye range is NGC 7789, an elegant, prodigious sprinkling of

Above: The contrasting hues of Achird's two component stars are revealed in this drawing made through a Sears 6339-A refractor. Combinations of light yellow and purple or pale garnet have been reported for the pair. The at-focus diffraction images are greatly enlarged in this view.

Right: In this illustration by English artist James Dyson, we visualize an Earth-size planet circling the two close spectroscopic components of Iota Cassiopeiae A. Primitive vegetation has gained a root-hold on this alien world, where water erosion and other geologic processes have combined to create an environment hospitable for the development of life.

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The extremely rich open cluster NGC 7789, photographed by Rob Hodgkinson (http://www.middlehillobservatory.com) with a Williams Optics ZS80FD refractor and an Atik 16HR camera. North is up and east to the left in this 45'-wide field. An estimated 600 stars are probable members, occupying a volume about 44 light-years in diameter. Caroline's "White Rose" Cluster is at a distance of 6,000 light-years.

telescopic stars located 3° southwest of Caph (β Cassiopeiae) and midway between Rho (ρ) and Sigma (σ). It is named "Caroline's Rose" or the "White Rose" Cluster, a marvelous memorial to Caroline Herschel, who discovered this notable object in 1783.

NGC 7789's starry multitudes are cataloged as ranging from the 11th to the 18th magnitudes, tallying up to a hazy 6.7-magnitude glow about 16' across. A 2.4- or 3-inch telescope usually shows a gray, uniform cloud of nebulosity peppered with myriads of tiny stars.

This showpiece of the northern skies glows supreme when a Sears Discoverer 6344 telescope is used. At 46x, NGC 7789 is a luminous extravaganza of ninety-plus enthralling stars, arranged into random patterns of spangled rays, parallel rows and festive loops.

The crowded interior is riddled with a complex mosaic of dark lanes and openings, giving it a somewhat tattered appearance. An 8th-magnitude star lies directly on the western edge.

NGC 7789 is much older than most galactic clusters. Stars within began igniting their nuclear fuel about 1.6 billion years ago, and a high number have already consumed the limited supply of hydrogen at their cores and are evolving into bloated red giants. On photographs taken of the cluster, they can be distinguished by their tepid orange hue.

Isaac Asimov's bestselling short story *Nightfall* often comes to mind when observing "Caroline's Rose." Lagash, an inhabited world circling six stars in a rich cluster, faces apocalyptic darkness for the first time in over twenty centuries.

As the last remaining sun enters total eclipse, ten thousand mighty points of light suddenly blaze forth into the planet's blackened sky, shockingly beautiful and immortal. Although Cassiopeia's NGC 7789 is not quite as concentrated, certain astronomical aspects make it good candidate for Lagash's fictitious parent cluster.

Located only a scant 1° south-southeast is the attractive stellar duet Sigma (σ) Cassiopeiae. It has 5th- and 7th-magnitude components separated by about 3"; the dimmer secondary is northwest of the brighter primary. Through a model 6344 refractor at 171x the major star appears ivory colored with a trace of green and the minor orb an unmistakable cobalt blue.

Those obsessed with Messier's catalog can try tracking down M52 (NGC 7654), a sparkling, triangular shaped group of over 80 stars. The cluster's magnitude 6.9 glow can be found by extending the line α – β Cassiopeiae, trending northwest, for about 6½° to the star 4 Cassiopeiae. M52 lies 1° south and just a tad west of this guide star.

M52 is estimated to be 4,600 light-years away. At that adopted distance, the calculated linear diameter works out to about 19 light-years, with a stellar density of three stars per cubic parsec. Light from M52 was emitted 35 million years ago, dating its time of formation to the Miocene Epoch here on Earth.

Its singular beauty unfolds when a Sears Discoverer 6339-A telescope is selected. A brief glance at 46x shows a moderately bright, three-pointed glow measuring 13' across. Further study reveals a population of approximately 40 individual stars of magnitude 8.2 and fainter. A bright foreground star, tinted topaz, is embedded within the southwestern apex.

Next, point your Sears telescope 36' southwest to a spot occupied by the emission nebula NGC 7635. Unfortunately for our purposes, the "Bubble Nebula" is far too faint and difficult an object to be seen in any 3-inch telescope. Only an associated 8th-magnitude star, HD 220057, can be detected.

M103 (NGC 581) is another favorite open cluster of cool November nights. Look for it in the constellation's "W" just 1° northeast of Delta (δ) Cassiopeiae. This group is about one half of the size of M52 and glows fainter at magnitude 7.4. Observing guides have often described it as "loose" and "poor."

Deep-sky portraits of M103 show a

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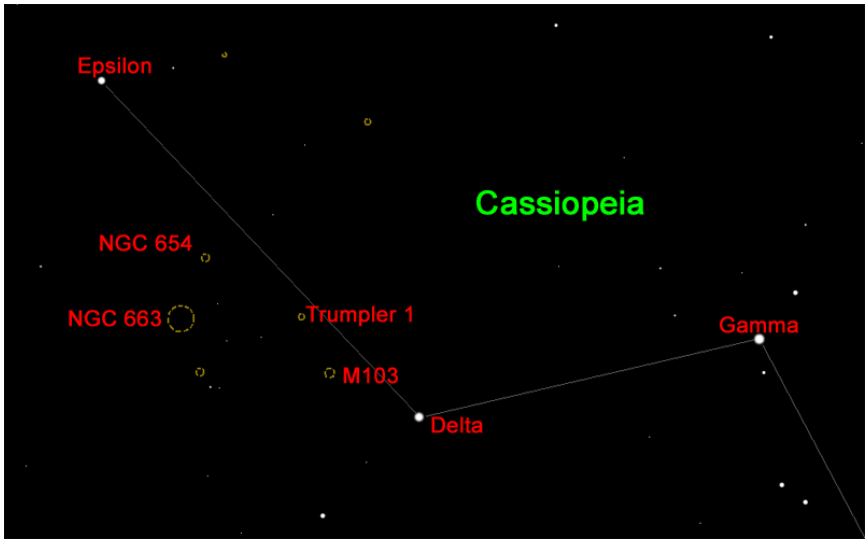

Above: The region between Delta and Epsilon in Cassiopeia is dotted with interesting star clusters as demonstrated on this chart from Skyhound.

Left: The loose open cluster M103 is easily spotted in small telescopes. This image is courtesy of Hillary Mathis and Nigel A. Sharp (AURA/NOAO/NSF).

fantastic assortment of some four dozen predominately bluish white orbs scattered inside a 6'-wide arrowhead. A rose colored star shines near its center and a wide triple known as Σ131 (Struve 131), the cluster's lucida, can be seen lodged on one corner.

M103 is a marvelous little swarm of suns when observed through a classic Sears Discoverer 6339-A refractor at medium and high powers. Forged into a fan-shaped pattern are four principal luminaries and a splash of about 10 fainter ones. Under averted vision a faint background haze, indicative of masked

Dean Jacobsen (http://astrophoto.net) made this image of NGC 7635 and the surrounding area using a Takahashi E-160 astrograph and SBIG ST-2000XM. Rich and dense M52 is at the upper left. Czernik 43, a smaller open cluster, is below and to the left of M52.

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Classic Discoverers

Two individuals share images of their vintage refractor telescopes for a widening audience of potential collectors and investors. These beautiful instruments trace their origin to Tokyo, Japan. Also popular are the smaller, cheaper 2.4-inch models that were sold en masse by Sears, Roebuck & Co. According to an informal survey, a sizeable fraction of astronomical households either already own or plan on acquiring at some future date one of these precision made telescopes. Used examples are plentiful, often found at not more than the original sticker price of $199.95.

Wisconsin resident Steve Gorton's instrument of choice is a model 6344 Discoverer from the early 1970s.

Mark Kuba's model 6339-A Sears refractor is a common sight around his neighborhood in Naperville, a large suburb of Chicago.

stars, engulfs the sparse assemblage. M103 is the matron of a family of five loosely packed open clusters, all lying within a 2° circle and at roughly the same distance of 8,000 light-years.

NGC 663 (Caldwell 10), another deserving open cluster of the 7th magnitude, can be found by star-hopping in a shallow clockwise arc toward Epsilon (ε) Cassiopeiae. A 3-inch Discoverer (6336) at 46x shows a lozenge-shaped agglomeration of about 40 faint stars shimmering inside an area ¼° across.

The last stop in our starry campaign is at NGC 457, an enchantingly beautiful collection of starlight positioned near the yellowish white gem Phi[1] (φ[1]) Cassiopeiae. It is less than 10' west-northwest of that star and found in the same busy region as M103, which lies only 2½° to the northeast.

Amateur astronomers often claim to see various anomalous shapes when examining this cluster. The most common is an owl figure with brilliant 5th-magnitude Phi Cas marking one of its penetrating eyes. Other individuals have also visualized monsters and human faces; one imaginative observer even pictured E.T. hiding among its stars.

NGC 457's diameter of 13' and cumulative magnitude of 6.4 make the cluster a stunning sight in any optical instrument. It is a rich scattered group containing about 80 stars brighter than the 14th magnitude.

The "Owl Cluster" is painted in fiery stardust. Forming a dual sun with Phi[1] is 7th-magnitude HD 7902 (Phi[2] Cassiopeiae), which lies 134" immediately west of its companion. A ruddy orange star (V466 Cas), shining at magnitude 8.6, is the cluster's brightest member.

With a 3-inch Sears 6336 refractor telescope at 46x it appears as a long, hollow triangle speckled with several dozen stellar points. Increased power helps to coax out additional members, but the star cluster's true glory is only achieved in large backyard telescopes.

NGC 457's distance is just as anomalous as the shapes seen there. Formal estimates recently published in astrophysical journals range from 8,150 light-years to a relatively high value of 10,400 light-years.

John W. Siple is a research chemist by trade. He has personally owned over 200 classic telescopes, many of them collector models. Currently living in a peaceful rural setting near the college town of Corvallis, Oregon, he spends most of his time studying and documenting the properties of Allel® Metal, a futuristic superconducting material.

The diamond sky of NGC 457 (Caldwell 13) entices observers in this photograph by Robert Gendler (http://www.robgendlerastropics.com). He acquired the data at his Nighthawk Observatory with an RCOS 12½-inch Ritchey-Chrétien reflector and SBIG STL-11000XM CCD camera. The field shown here is about 36' wide with north up.

Avoiding Amateur Astronomy Disasters

November, 2010
By Tom Koonce

The weather is turning cold and all of us want to maximize our observing time and minimize how long we're exposed to the bitter cold. In circumstances like this, we amateur astronomers tend to get in a hurry, or perhaps not think things through before doing something… and disaster can strike. Disasters come in many forms, among them, dropping an eyepiece to the ground because it wasn't held securely. Hearing the thud/crunch/tinkle sound is sickening, even for those observers around you. Having your secondary mirror come loose and drop onto your primary mirror is pretty bad, but what about dropping an expensive precision filter into the dirt? And then there are the truly dangerous mistakes such as not making sure a stepstool or ladder is on firm ground or loading your dobsonian telescope lengthwise into the car with the secondary at the front and the primary at the back of the car. I'll explain each of these and how to reduce the risk of these happening to you.

The cold affects each of us to a differing extent. I'm assuming you already know to dress for weather 20 degrees cooler than weather reports predict. After all, you're going to be standing still in freezing weather, not chopping a cord of wood. I also assume that you know to remain hydrated since this can affect your thought processes and reaction times. Some people get cold just thinking about going out at night, some must have a furnace built inside of them because they seem to remain warm with little notice of the thermometer. Most of us are in between these extremes. Fingers and toes get cold first, and then grasping objects becomes difficult, thought processes slow down, and our logic becomes blurry. The trick is to recognize how **you** respond and take steps to counteract it before you damage equipment.

Disaster: Dropping eyepieces. Think ahead about which eyepieces you will need for the next hour. Keep a fanny pack on over your jacket that makes storing and switching eyepieces convenient and minimizes how long your fingers have to grasp them. Stick your hands inside of your jacket and under your armpits for a couple of minutes before you do the eyepiece switch. Another trick is to place a packing quilt or old rug under your entire telescope setup so that if something is dropped even after taking precautions it might survive the plunge.

Disaster: Secondary Mirror Drop. Always check your equipment. Before you start your evening's observing, do a "walk-around" of your telescope. Are there any frayed wires? Are there any loose bolts? If you have a Newtonian, is the secondary secured to its mount? Have you placed a small safety wire between the spider and the secondary… just in case? This is a disaster that can be avoided. I have seen/heard this happen to my buddies 6 week-old 14" dob at a public outreach event. It destroyed his primary mirror. During your walk-around, be conscious of any tools that you need to setup your telescope. Wrenches and screwdrivers can be devastating when applied to any optical surface. Tools tend to slip when brains and fingers are cold. Consider drilling a hole through the handle and affixing a cord loop to each tool to wrap around your wrist to eliminate the possibility of despair.

A filter slide provides safe and easy access to your filters. Photo used with permission. www.Astrocrumb.com

Disaster: Filter Drop. Think ahead about the dexterity you're going to need to take the small filter out of its case and screw it onto the eyepiece. It's possible that filters can be only partially screwed onto the eyepiece and may drop off onto the primary mirror during observing. In my dobsonian, I can vouch for the fact that a two inch O-III makes a heart-stopping sound when it bounces off of the primary mirror. Not good. To remedy this situation, take the time to make sure that your fingers are warmed up and the filters are fully screwed on. Alternatively, consider installing a filter slide on newtonian or dobsonian telescopes. I have made this modification on my dob and it makes using filters simple, convenient and safe. If you have this type of telescope, check out http://www.astrocrumb.com/ for the best filter slides I've found.

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Disaster: Stepstool and Ladder Tilt. Anyone who is showing the night sky to the general public or ho has a larger dobsonian knows the pitfalls of using stepstools or ladders. They need to be sturdy and lightweight, but rarely are they made to be placed upon bare earth. Sometimes ground can be frozen hard on the surface, but mushy just an inch or two below. Take the time to be sure of the placement of their feet to avoid a fall in the darkness. Test the stepstool with your full weight with someone standing in the safety position to catch you before trusting it to anyone else.

Disaster: Mirror Missile. Avoid this disaster by loading your newtonian / dobsonian telescope correctly into the back of your SUV. Think of what might happen during an emergency stop or front crash. If the tube is loaded so that the primary mirror and mirror cell are forward and the secondary mirror closest to the rear of the vehicle, an emergency stop will just press the primary mirror more securely into the mirror cell. However, if the secondary mirror is forward and the primary mirror is closest to the back of the vehicle, such a stop will likely rip the mirror from the three small protrusions that keep it centered on the mirror cell, sending it crashing forward, through the secondary mirror and likely into the back of the head of a person sitting in the front seat. Having your life saved in a crash by an airbag only to have your telescope's mirror kill you in a shower of glass shards milliseconds later is a serious disaster easily avoided.

OK… Take a deep breath… there is only a miniscule chance that any of these disasters will happen to you, and they are even less likely to happen if you take a few simple precautions involving just a bit of forethought and cost. Stay warm and keep safe out there.

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I'd like to draw your attention to the Astronomy Outreach Foundation which is trying to combat the "Graying" of our hobby by attracting Generations X and Y into the fun of amateur astronomy. This is a non-profit foundation started by a combination of amateur astronomical industry leaders "to stimulate greater public interest in astronomy and to assist everyone in becoming more engaged in activities that allow them to learn more about the universe." For more information, please visit http://www.astronomyoutreachfoundation.org

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Note to Newsletter Editor: I have no vested interest in the Astronomy Outreach Foundation or in Astrocrumb Filter Slides. But I have found that both are worthwhile entities. – Tom Koonce

2011 Starlight Parade Float Design Contest

Rose City Astronomers have entered a float in the Starlight Parade two years in a row, 2009 – 2010, and we would like to make a particularly nice entry for 2011.

We are offering a contest for RCA members to design a parade float. Entries will be solicited until the November, 2010 general club meeting. The winning design will be announced at the December, 2010 potluck dinner.

Designs should be submitted on paper, as a drawing, and include written explanations. Your entry in the contest should include:

1. a proposed theme,
2. a proposed design and
3. a proposed construction plan.

Be sure to include your name and contact information.

The requirements for the float design are a mix of Rose Festival requirements and our own. These requirements are posted on the Forum.

The winner of the contest receives the following prizes:

- ☆ Their name will be included in the script that is delivered by the announcers as the float passes the grandstand.
- ☆ They may ride the float in the parade.
- ☆ They may be a judge in the following year's design contest.

The judges in this year's contest will be Greg Rohde, who designed the 2010 float, David Nemo, who oversaw much of its building, Margaret McCrea, agent provocateur, and Sameer Ruiwale, president of RCA.

The judges may not select any of the designs if in their opinion none of the submissions would be suitable for the event. The judges also may modify the design during the planning and construction phases, in consultation with the designer, in order to accommodate any contingency that may arise.

For questions or more details, contact any of the above named judges.

Visit with Zacatecas Astronomical Society

September 2010

By Margaret McCrea

On invitation of Luis Santana, who read the *Reflector* article on our sister club experience with GAMA, I visited Zacatecas, Mexico from September 7 – 12, 2010. Zacatecas is located about 350 miles north of Mexico City. It is the capital of the state of Zacatecas. It is at about 23 degrees north latitude, 103 degrees west longitude, and about 7,500 ft. altitude.

The town sits in a bowl-shaped valley. There are mountains rather far away, but the town is surrounded by hills, and on one of those hills is a working observatory. It has about 135,000 people, and the primary economic activities are mining and raising livestock. The city was one of the first Spanish silver mining areas. It was the site of an important mint of silver coins, which were dispersed throughout the Spanish territories. The city houses a number of historic buildings and many museums and cathedrals. There is even an aqueduct, still in use, looking very Roman, and a Spanish bullfighting ring, which is now an upscale hotel. There are also archaeological ruins about thirty miles from the town that are about 1,400 years old. The entire town is a UNESCO world heritage site.

As for safety, I found that Mexico south of the border states was quite safe. The transportation proved to be more of a problem. The way that I traveled was cumbersome, tiring and expensive. After I arrived, I learned of a cheaper, more direct way to fly to Zacatecas on Volaris, but it is limited in the number of days that it flies. Unfortunately, it was cloudy and grey the entire time I was there. We even had a thunder and lightening storm on Wednesday night that seemed to be about as bad as the Tuesday night storm at the Oregon Star Party this year. I did no viewing. Apparently the skies are best from about January to March. The weather and other conditions in Zacatecas seem to be like those of Taos, New Mexico.

Above: Zacatecas, Mexico. The towers on the far hill indicate where the astronomical observatory is located.

Right: Street scene and plaza in Zacatecas. The yellow building is one of several museums made from historic buildings in Zacatecas.

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My host family consisted of Luis, his wife Sonia and their son Javier, aged nine. They were very warm and hospitable. Luis is a professor of music at a local university, and performs classic Spanish baroque guitar in concert throughout Europe and the U.S, and has produced three CDs. His wife Sonia is a soprano who sings on the CDs. She has a really lovely voice. She is also a dentist and a homemaker. They gave RCA a copy of each of their CDs, which I have contributed to the library. Javier is a lively and very bright boy who is wildly obsessed with coins and paper money. He knows the history of all the coins minted in Zacatecas, he knows all the presidents on the American bills, and all the security features on bills being produced today. From him I learned that the U.S. printed Mexico's paper currency until 1969. I stayed with the family, (and with the family rabbit named Bunny), for five nights.

Luis and Sonia with their son Javier at the La Quemada ruins.

One of the many historic churches in Zacatecas. The pink stone is quarried locally.

Luis has three telescopes and is a telescope dealer in Zacatecas. He is also a meteorite collector, having an extensive collection. We spent one nice afternoon going through the collection, looking at rocks from space originally found in Australia, Russia, Canada, the American desert, and Africa.

I arrived during the annual three-week festival celebrating the birth of the state of Zacatecas. The primary event was a fair-like event, sponsored by the state government, that consisted of family fun rides, carnival foods, nightly music and dancing, and a lot of vendors. There was one hall that had a science theme. The main exhibit in the science hall was a kids' activity area sponsored by the local children's science museum, called ZigZag, which corresponds to OMSI. The Zacatecas Astronomical Society (ZAS) had a space, with posters, telescopes, a video player, and some tables. Luis was scheduled to give a talk on meteors on Tuesday, so at 2:00 p.m. we arrived to put in our time at the ZAS display. Unfortunately, no one came. The next time we went to the state fair, on Thursday, we put the telescopes out in the passageway to entice people to come and notice. We had help from several college students from the local institute for the study of physics who are also club members. They livened things up and showed a real knowledge of and interest in getting out under the dark skies and using the

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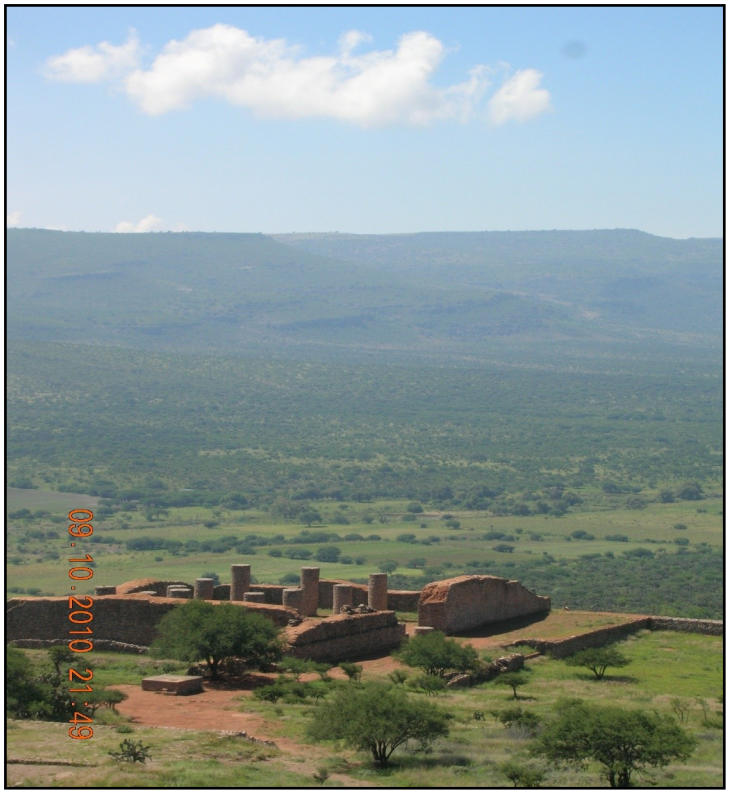
Above: Ancient ball court at La Quemada ruins. It's possible to drive to this location and observe.
Right: Javier scrambles up the ruins. The older folks are coming up at a more leisurely pace.
Below: View to the south from the highest point at La Quemada.



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scopes that they had. A couple were interested in astro-imaging, but were using their cell phone for shots of the moon. In talking to them, I learned that they have gone out observing together several times. Part of the poster display showed them setting up at their star parties.

On Wednesday I met a few of the club's officers. The president is a retired professor of astrophysics, Alejandro Muñoz, and most of the club members are his current or former students. Another Alejandro, Alejandro Gonzalez, is director of scientific research for the club. He is a professional astronomer, working at the "observatory on the hill." The vice president is Rafael Magallanes, a professor and scientist currently working on the impact of global climate change on the Zacatecas agricultural economy. Luis, my host, is the director of public outreach.

On Friday of my stay, Luis, Sonia and Javier took me out to the archaeological site, a set of ruins called La Quemada. We had a nice day scrambling over the ruins and visiting the museum. Luis showed me several good places to observe. We also discovered that a new path had been poured, making the ascent to the ruins easier, and that it's possible to drive to part of the ruins, where there is a very large flat area for observing. Also, the museum at the site has a flat roof which the club has used as a patio for observing. The advantage is a huge south-facing vista. We had extensive discussions about the possibility of having a Messier Marathon there in March.

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ZAS, in spite of its youthfulness, has had a couple of impressive successes. In the last two years, it has organized two major public star parties at La Quemada. The first year they drew 5,000 people, the second year they drew 3,000. It's called "The Night of the Stars." Luis showed me where they set up their telescope (on the patio roof of the museum) and where they held their workshops and classes (in the ramada).

Above: The patio of the museum faces south. This is where the club sets up telescopes for the Night of the Stars public star party.

Left:The ramada at the museum. The doors are open to rooms that can be used for classrooms or warming rooms during a star party.

The club has also offered classes in astronomy twice, through the ZigZag Museum. The classes were eight weeks in length and each had over twenty graduates. In addition, there is the ten-year history of at least some of the people in the club observing together. Zacatecas seems to be loaded with resources and "natural allies." There is the children's science museum, the physics institute, more than one university, and the observatory. The vice president of the club, Rafael, described Zacatecas as "little Boston" because of the several institutions of higher learning in town. Finally, there is Luis himself, who is motivated and interested in making a sustained sister club relationship with RCA. In talking to the club officers - - "los dos Alejandros," - - I learned that their priority right now is to get a website going, and to find a stable source of funding.

I was rather surprised to learn that astronomy is as healthy as it is in Mexico. The city with the most active amateur astronomy is Monterrey. There are three astronomy clubs there, and for the last twenty-two years, they have sponsored a national conference of astronomy clubs. I gathered that these three clubs in Monterrey are the counterpart of our Astronomical League. Also, every state in Mexico has at least one astronomy club (31 states and a Federal District, which is Mexico City) and the clubs just north of Mexico City sponsor a large Messier Marathon every year.

Also, there are almost 200 professional astronomers currently working in Mexico, and Mexico is the site of the world's largest radio telescope at Atzizintla, Mexico, just outside of Cuernavaca. It's a joint project of Mexico's National Institute of Astrophysics, Optics and Electronics (INAOE) and the University of Massachusetts. I suggested that the club and I work together on an article tentatively called *The State of Amateur and Professional Astronomy in Mexico Today,* which we might try to publish in *Sky and Tel* or the *Rosette Gazette*. Then I went online and discovered an article with almost exactly that same name. The article is about professional astronomy, and here's the link: http://www.inaoep.mx/~itziar/papers/AMC_Astronomy08.pdf

I came away from the trip with several feelings and ideas. I developed a lot of respect for a small club that has managed to do a great deal with little money, few members, and as of yet, only the sketchiest of official existence. I was impressed by the interest and knowledge of the individual club members, and wished that they had more and better equipment. I was very impressed by the quality of the officers. All of them are professionals in one way or another in astronomy, or science, and have a great deal to share with club members and the public. I was excited about the La Quemada ruins and would like to find a way to return, and can see having an international Messier Marathon there. The large "Night of the Stars" star party for 2011 will be in February, leaving March for a

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smaller group of observers. Unfortunately, the new moon in March of 2011 does not fit with my own work schedule, but I encourage anyone in the club who wants to give it a try to go down and report on the results. Your host family will be delighted to share their skies with you. Finally, I was a bit embarrassed that I, as an American, know so little about our closest neighbor. It seemed to me that Mexico is blessed with many, many excellent places to observe, and that there is probably a wealth of observing clubs and potential friends there. It felt to me that we have been sitting next to the Big Rock Candy Mountain and we - - well, I - - just woke up to see it. I would like to see RCA and RCA members make efforts to connect up with all the friends, resources and fellow observers we already have just next door.

From the Zacatecas Astronomical Society's Facebook page, the club set up a side-walk telescope after watching a documentary on astronomy in Mexico. Rafael is kneeling at the scope, Alejandro the president stands next to him in a white jacket, and Alejandro the astronomer is in a suit and yellow tie.

BOARD MEETING MINUTES
Sept 13th, 2010 7pm
OMSI Classroom 2
Duncan Kitchin

Board Members Present

Sameer Ruiwale (President)
Matt Vartanian (VP Observing)
Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Duncan Kitchin (Secretary)
Larry Froberg (Sales Director)
Diana Fredlund (Media Director)
Howard Knytych (New Member Advisor)
Jan Keiski (Library Director, OMSI Liason)
Greg Rohde (Telescope Library)
David Nemo (Observing Site Director)
Scott Kindt (SIG Director, Newsletter editor)

Guests Present

Leo Cavagnaro
Bob Anderson

Call to Order

The meeting was called to order at 7:07 by Sameer Ruiwale and, there being 11 of board members present, the quorum requirement of 10 was declared to be met.

Approval of Agenda

Moved: David Nemo. Second : Duncan Kitchin. Agenda approved 11-0-0.

Approval of Minutes

Moved: Approve minutes from the January 2010 board meeting. Corrections: Duncan: New member meeting also included Neil Heacock as a presenter. Discussion as to location of September meeting – it will be in the Moved: Sameer, Second Diana. Approved 11-0-0.

Directors' Reports

- Secretary's Report – Duncan Kitchin: Quorum (10) met with 11 voting members present. Duncan not present at August meeting, Ken Hose delegated to minute.

Treasurer's Report – Larry Godsey: Accounts for the month distributed. Compared to last year, spent a little less because of purchase of telescope equipment last year. Only two months in, nothing outside expectations so far. Itemized list also provided.

(Continued from page 20)
Additional details are available on the website.

- VP Programming – Matt Brewster: Matt not present, Sameer reporting in leiu. Leo is going to do a presentation on Southern Skies this month. Looking for MC for the meeting – Sameer is out of town next week. Matt Vartanian will take over for Sameer.

- VP Observing – Matt Vartanian: Star party Oct 8-10th at Camp Hanckock. Matt taking over registration from Larry Godsey. Have 5 people registered so far, still early. Need 20 to make $1600 commitment. Fixed price this time; everything is included in one price of $45 per person per night. Discussion about policy on bringing children: there is no prohibition on bringing children, but there is no youth program and the star party is not likely to be suitable for children unless they have a strong interest in astronomy.

- VP Community Affairs – Dawn Willard: Not present.

- Media Director – Diana Fredlund: Matt Vartanian and Diana had an earlier discussion regarding think out loud on email. Not sure about timing, and Diana has stated that the event is not time sensitive. Matt has some ideas that he is working on that would be good for discussion. Possibly schedule for late spring or early summer next year, which would fit well with viewing opportunities. Matt will keep working on ideas and will keep Diana updated on any additional information. Will look to schedule sometime around February of March timeframe.

- VP Membership – Ken Hose: Not present.

- New Member Advisor – Howard Knytych: No new members orientation last month due to other events such as OSP. Will be a meeting next Monday. Topic will be on how to navigate the night sky and correlate what you can see in the sky with what is on a star chart.

- Sales – Larry Froberg: Larry has 4 of the programmable name tags as a test. Will bring to the general meeting on Monday. Has one programmed to pass around. Display speed and brightness are both adjustable. Instructions were unintelligible, so Larry has rewritten. 4 were $8 each including shipping, but can buy in bulk at 40 units for just under $6 per unit including shipping costs. Also placed a shirt order. 120 total of t-shirts, hoodies and sweatshirts in various colors and sizes. Have arrived and will be ready for sale. Larry's assistant had to resign position due to an unexpected move out of Portland. Larry has been looking for additional volunteers, and has managed to find two so far already. Has some revisions from the spreadsheet from July. Total taken in was $397 in July and $261, including $95 for skytools and 166 for merchanidise.

- Book Library – Jan Keiski: Nominal

- Telescope Library – Greg Rohde: Nominal

- IDA – Dawn Nilson: Not present

- Magazine Subscriptions – Larry Godsey: Nominal

- Webmaster – Larry Godsey: Nominal

- Site Committee – David Nemo: Donation of $1400 from sale of a member's personal telescope. Star party at Skyview Acres. Will start a discussion on the forum about what people liked/disliked about the site.

- Youth Director - Jean London: Not present

- Newsletter Editor – Scott Kindt: Talked last month about some things to add. Scott as gone back over past years to see if there were items that used to be carried to see if there is anything that could be included again. One possibility would be to add a "new members welcome" box. Also, could add reports of observing awards that members have received. Sameer will ask Dale to forward reports of awards to Scott and Larry Godsey for the website. Discussion about classified ads. David Nemo – this has been discussed before and abandoned because it could get out of hand. Suggests that the editor include items as discussed at his discretion. There will also be an article from Leo forthcoming soon. There are several articles already lined up for the next few months, but additional suggestions or contributions to the editor are welcomed.

- SIGs – Scott Kindt: Nominal

- Alcor – Dale Fenske: Not present

- OMSI –Jan Keiski: Invitation received - Stub Sterwart wants to thank volunteers with an invitation to a barbeque 23rd of September. Suggested event from Jim Todd – total lunar eclipse on December 20th after RCA potluck.

Sister Club update – Jan Keiski / Update from GAMA by guest Leo Cavagnaro. Have proposal from national university to build a small observatory but have a problem – have no telescope. Want to see if they can find if there is an institute in the US from where they could get a telescope. Looking for at least 20 inch. Type of telescope? If it is inside an observatory, would be very beneficial to have a tracking telescope. Have a tracking system that came from Dan Gray. Observing site has two options. Monthly observing site 30 miles north of Mendosa. Looking for a seoncd site in the South of Mendosa. Very difficult to buy large telescopes in Argentina. Funding is available to build the structure from the university, but GAMA is looking for funds to acquire a telescope. Greg Rohde: Difficult to construct a telescope of this size unless it is a Dobsonian, but not impossible. Also need to consider shipping costs which will be very high. Sameer – we will all continue to look at this and see what we can do to help.

Old Business

Review 2011 Star Party Schedule – Matt Vartanian. Still need to talk about Kah-Nee-Ta, but Matt Brewster will be handling this. Contract will need to come to the board for approval. Larry Godsey: there is still a concern with Maupin and Hancock in April 29th and 30th scheduled for the same weekend. Larry is concerned about these two being on the same weekend, because Maupin can easily drain attendance from Camp Hancock, and we have minimum attendance numbers to meet. This could result in us having unfunded costs. Cancellation deadline for Camp Hancock is 60 days in advance, which means that it is effectively impossible to cancel. Consensus is that we should not schedule anything on the same weekend as

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Camp Hancock.

Review Kahneeta Star Party contract for 2011 event – Matt Brewster. Will review when Matt is here.

Update on calendar printing costs from vendor – Larry Froberg / Greg Rohde. Will roll this into the calendar project discussion.

Proposal for a cheap tracking mount for the club to purchase to be used for DLSR camera imaging – Ken Hose. Duncan will follow up on the forum.

DONE: Identify appropriate alt-az mount to purchase for club PST – Sameer Ruiwale / Greg Rohde – (Celestron Alt-Az mount cost $90 will work well for this purpose). Sameer has a printout of an ad for such a mount. Proposed to go and buy this mount. Sameer will place the order.

TABLED: Update on proposal for "Think out loud" radio show – Diana Fredlund / Dawn Nilson.

TABLED: Create Mirror Making Machine usage instructions – David Nemo / Greg Rohde

New Business

Feedback for Skyview Acres site / long term usage discussions – David Nemo / All. David will start a forum list to collect pros and cons. No real discussions on leasing terms yet.

2011 Calendar Project Status – Greg Rohde / Larry Froberg. Costs – have a couple of vendors. Greg Rohde has brochure from one of the vendors, annotated with a special deal for us. Quantities of 100, 11" wide by 17" tall range of $8 - $9 each. Diana also has a couple of alternate vendors that she has talked to. Sameer also has the details. Sameer: do we have samples available? Status of images: need to identify the exact size and aspect ratio, so that pictures can be cropped to that size. Greg has 5 images so far, and offers for 3 more. There are probably many other images available once the size is known. Star party schedule to be closed. Almost complete – Larry Godsey has been assembling a list on the website, and has dates of meetings from almost all of the SIGs, plus Moon phases. Awaiting OMSI star parties and science SIG dates. Star party schedule awaiting confirmation from Kah-Nee-Ta. Larry Froberg will coordinate remaining issues.

2011 Elections nominating committee update – David Nemo. We have a committee assembled. David will send out a broadcast message with the details, as required. Officers will be elected in November. Nomnations due September 30th. October, the slate of candidates will be announced. Also will includea a link to the website with the bylaws for further dertailas. These are only for elected officers. Will also include requests for volunteers for any non-elected officer posts in need of filling.

Offer to donate very old Celestron 8" and old Meade 10" to club -- Sameer

Does this go to telescope library / other uses? Greg Rohde recommends that we accept the donation. There are also needs from the Eugene club. Larry Godsey – should also check with Dawn Willard; there may be some needs for telescopes to use with local school classes. Will accept the donation and discuss on the forum what the most effective use of them will be.

Adjournment

There being no further business, the meeting was adjourned at 8:55.

New RCA Club Calendar

When is the Trout Lake Star Party in 2011? If I get a telescope for my birthday will it be near the full moon? These questions and more could be answered with a new 2011 RCA calendar.

We are pleased to announce the arrival of our new Rose City Astronomers wall calendar.

The calendar features photography from many of our club members. It also features the dates for scheduled star parties for the Rose City Astronomy club and selected regional star parties.

The calendars will be available beginning in December at the Sales Table.

MAY 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November 2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 7pm Board Meeting OMSI Classroom 1	**2**	**3**	**4**	**5** New Moon Downtowners Luncheon Kell's Noon	**6**
7 End of Daylight Savings, Turn Your Clocks Back	**8** 7pm Astro Imaging SIG Beaverton Library	**9**	**10**	**11**	**12**	**13** First Quarter Moon
14	15 6:30 New Members 7:30pm General Meeting OMSI Auditorium	**16**	**17** Cosmology SIG Linus Pauling Cntr 7pm	**18**	**19**	**20** 10am - 3pm Telescope Workshop 3pm Science SIG
21 Full Moon	**22**	**23**	**24**	**25** 	**26**	**27**
28 Third Quarter Moon	**29**	**30**				

December 2010

December 6	Monday	Board Meeting	OMSI Parker Room	7pm
December 3	Friday	Downtowner's Luncheon	Kell's	Noon
December 13	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
December 20	**Monday**	**General Meeting**	**RCA Potluck OMSI Auditorium**	**6:30pm**
December 18	Saturday	Telescope Workshop	Swan Island	10am-3pm
December 18	Saturday	Science SIG	Swan Island	3pm
		Cosmology SIG	No meeting scheduled for December	

The RCA General Meeting falls on the third Monday of each month. We usually meet in the Auditorium at OMSI, next to the Murdock Planetarium. Occasionally the meeting is held in Murdock Planetarium. Check the RCA web site for the latest information.

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 22, Issue 12 Newsletter of the Rose City Astronomers December, 2010

RCA MONDAY DECEMBER 20
ANNUAL POTLUCK DINNER & SWAPMEET

In This Issue:

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

For December we have our Annual Potluck Dinner & Swap Meet

If your last name starts with	Please bring a
A thru K	Main Dish
L thru Q	Dessert
R thru Z	Side 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.

All are Welcome! Monday December 20

Social Gathering: 6:30 pm. Location: OMSI Auditorium

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
Jan 3	Dec 13	Dec 21	Dec 27

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	Matt Brewster	communications@rosecityastronomers.org
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Telescope Director	Greg Rohde	telescope@rosecityastronomers.org
Observing Site Director	David Nemo	sitefund@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@rosecityastronmers.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>

Local Happenings

Mark Martin has received award # 2522 for his Messier observation of more than 70 objects. Congratulations Mark!

Election of Board Members

Congratulations to the following people, they were re-elected to another term at the November general meeting.

President, Sameer Ruiwale
Vice President - Members, Ken Hose
Vice President - Observing, Matt Vartanian
Vice President - Community Affairs, Dawn Willard
Vice President - Communications, Matt Brewster
Treasurer, Larry Godsey
Secretary, Duncan Kitchin

Thank you to the nominating committee consisting of Howard Knytych, David Nemo, Greg Rohde, Michael Minnhaar, John DeLacy, and Brian Wilson .

Special Interest Groups

Astro-Imaging Special Interest Group

When: Monday, December 13th, 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: Saturday, December 18th, 3:00pm
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, January 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

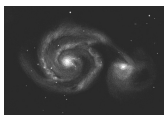
When: Monday, January 17th, 6:30pm
Location: OMSI Planetarium
Topic: TBD
SIG Leader: Howard Knytych
Email: newmembers@rosecityastronomers.org
http://www.rosecityastronomers.org/sigs/new_members.htm

Telescope Workshop

When: Saturday, December 18th, 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: ****No Meeting in December****
Topic: To Be Announced
Presented by: To Be Announced
Location: Linus Pauling Complex,
3945 S.E. Hawthorne St., Portland.
SIG Leader: Lamont Brock
Email: cosmology-sig@rosecityastronomers.org
www.rosecityastronomers.org/sigs/cosmology.htm



The Whirlpool, Lord Rosse and the Nature of Visual Observation - Part III

~ Lord Rosse's sketching technique and the famous engraving of M51 ~

I was fascinated to find an account of how Lord Rosse made his sketches. I mentioned in Part II of this paper that he used the 36 inch scope to lay out the general outline of his sketch, and that he would then employ the 72 inch to fill in the details. He used his preliminary sketches to later make a finished sketch.

While sketching at the eyepiece he used a small observing book, about 8 x 5 inches, and would make a rough sketch, note the objects position and write a brief description. However, sketches were often copied several times and weren't always finished at the eyepiece. They were sometimes completed later by memory.

It's important to note that shortly after the positive image (black background, white M51) of the June 1845 finished sketch was published by John Pringle in 1846, the Great Famine hit Ireland and Lord Rosse directed his energies to the food crises. He no longer had time to observe, so to keep the 72 inch telescope productive during the crises he hired astronomers to continue observations. His son Laurence also joined the observation team.

Everyone's sketches and notes were hand copied into two general ledgers – one kept by the telescopes and the other in Lord Rosse's office. Both ledgers were supposed to have exactly the same information and drawings, but due to the inherent non-exactness of hand copying differences appeared. This is the genesis of the famous 1850 engraving.

After much observation and discussion, the details that seemed real were combined into a composite sketch. This sketch would be checked against the real object at the eyepiece several times to make sure of the reality of each detail. A composite sketch was often re-traced to begin another sketch, and so the process continued until Lord Rosse deemed the result to be good.

In 1850, after the food shortage was under control, the first image to be produced by the collective method above was published in the ***Philosophical Transactions*** of 1850, which is shown on the next page. This is the famous image that today is presented as the discovery of spiral structure in M51. It's unclear how directly Lord Rosse was involved with the observations that lead to this engraving but he did make the final drawing.

Since it was made through an entirely different process than that used for the first two sketches, which were made solely by Lord Rosse, it's not accurate to consider this engraving the work of Lord Rosse alone. Perhaps the interruption of the famine had given him time to come up with the more methodical team approach to sketching in hopes of capturing the true look and nature of M51 and all other nebulae. Given the importance of his discovery, a new approach to gain accuracy would certainly be attractive.

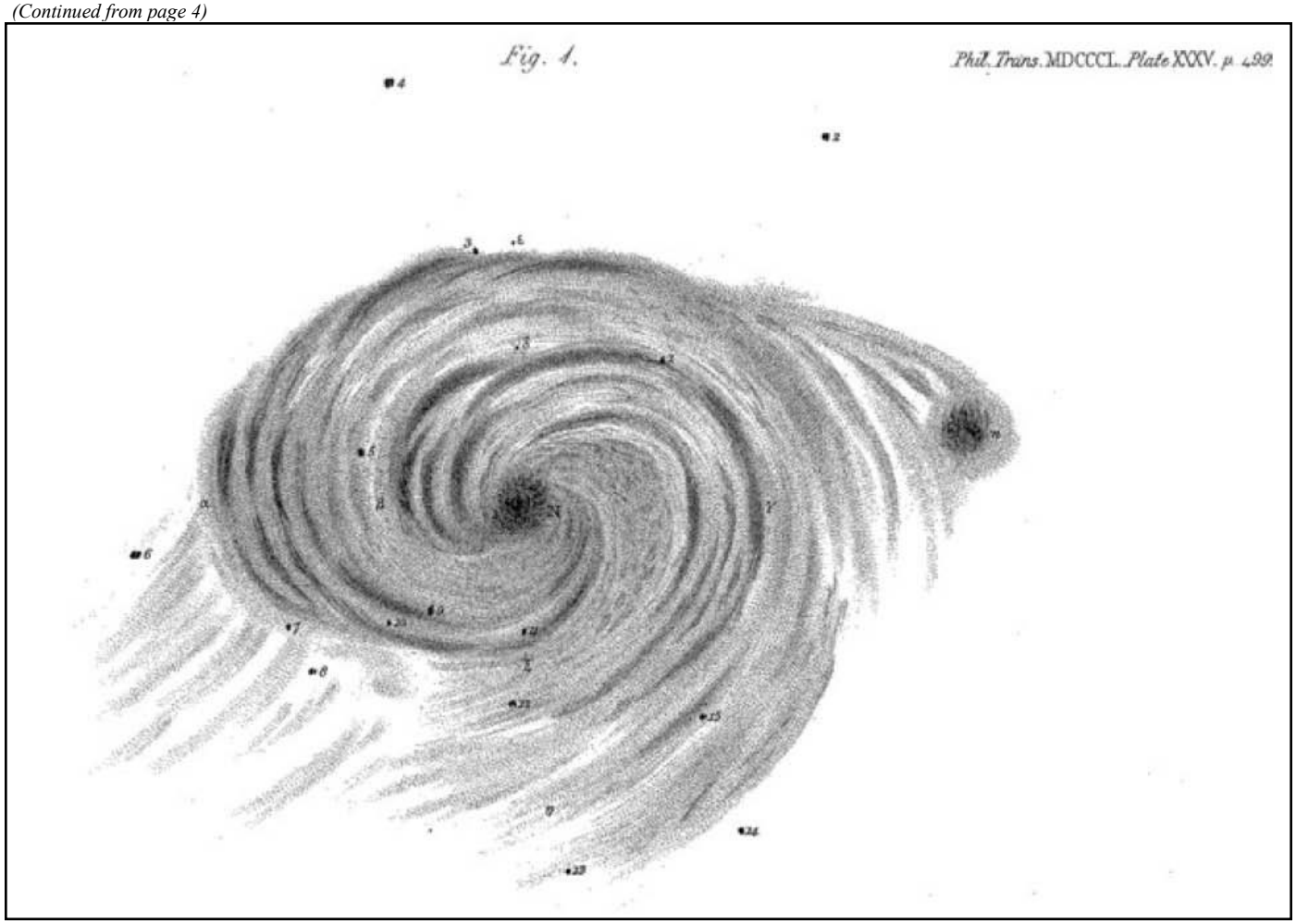
In retrospect, this process seems to ensure that the finished sketch ends up bearing the least possible resemblance to the actual view in the eyepiece. Combining sketches from different observers, tracing and retracing, discussing the reality of details to decide what gets into the composite and final sketch – this multiplies the subjectivity of an already highly subjective enterprise.

My guess is that the great differences between this 1850 Whirlpool Nebula[5] engraving and the April 1845 Rosse sketch is a result of the multi-observer approach versus the effort of a skilled, individual observer. Which looks most realistic to you? I vote for the April 1845 working sketch. With respect, the 1850 engraving looks very much like the work of a committee, so even though it was an attempt to improve accuracy it ended up becoming less so.

(Continued on page 5)

[5] Robinson coined this name after confirming the spiral structure through the 72 inch in 1848.

(Continued from page 4)



The Rosse observing team's famous 1850 Whirlpool engraving, published in Philosophical Transactions, 1850.

Nonetheless, I think this engraving hints at a specific property of the 72 inch telescope. With the maximum light gathering ability of a modern 34 inch telescope but with the full resolution of its 72 inches of aperture, M51 was full of a confusing array of barely detectable detail. The differing observing and sketching abilities of each observer would have detected varying amounts of this low-level detail and so greatly complicated the already problematic committee process of putting together an accurate sketch.

~ Sketch comparisons ~

The Lord Rosse team went on to publish many other sketches and an impressive list of discoveries that were added to the NGC and IC catalogues. They discovered more examples of spiral nebulae and published three major papers in 1850, 1861 and 1879-80. They helped move forward the science of astronomy with their greatest discovery, spiral nebulae.

Great accomplishments, and worthy of more research, but my goal now is to compare my sketch to his and both to a modern photograph of M51. But which sketch? We've seen the first three M51 sketches produced by Lord Rosse, but to my eye the first working sketch is the most accurate so I'll use that one for comparison purposes.

I've gone through some information about 19 th century visual observations with a large, narrow field telescope, sketching techniques and how they relate to accuracy. The Hubble Space Telescope will help us judge how accurate Lord Rosse's first sketch is, along with how well I did with mine.

(Continued on page 6)

(Continued from page 5)

Hubble Space Telescope M51 image, NASA.

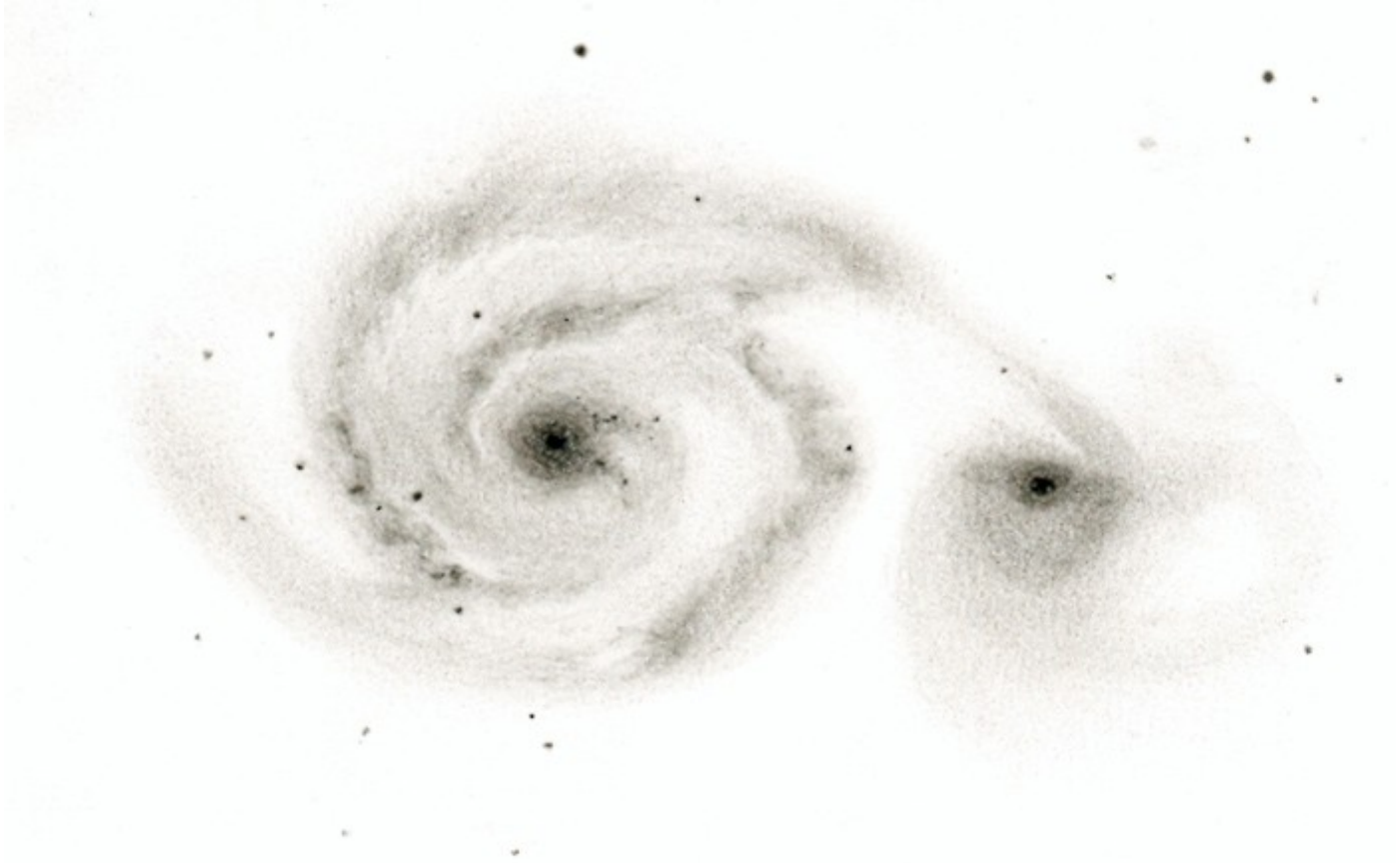
At first glance, my sketch matches the photo more closely than does Lord Rosse's, but that's hardly a surprise because I had the best possible advantage – namely, superb full color images showing exactly what M51 looks like. And since I've dissected Lord Rosse's sketching technique let's take a look at mine.

I started off with a blank page in my 8 inch by 5 inch notebook. I consider my notebook more of a sketch book that I also take notes in so I like to start with a blank page – no "eyepiece circles". This gives me the freedom to expand or contract my sketch and take notes as needed for a particular object. Because of M51's size and amount of detail I used an entire 8" x 5" page for my sketch.

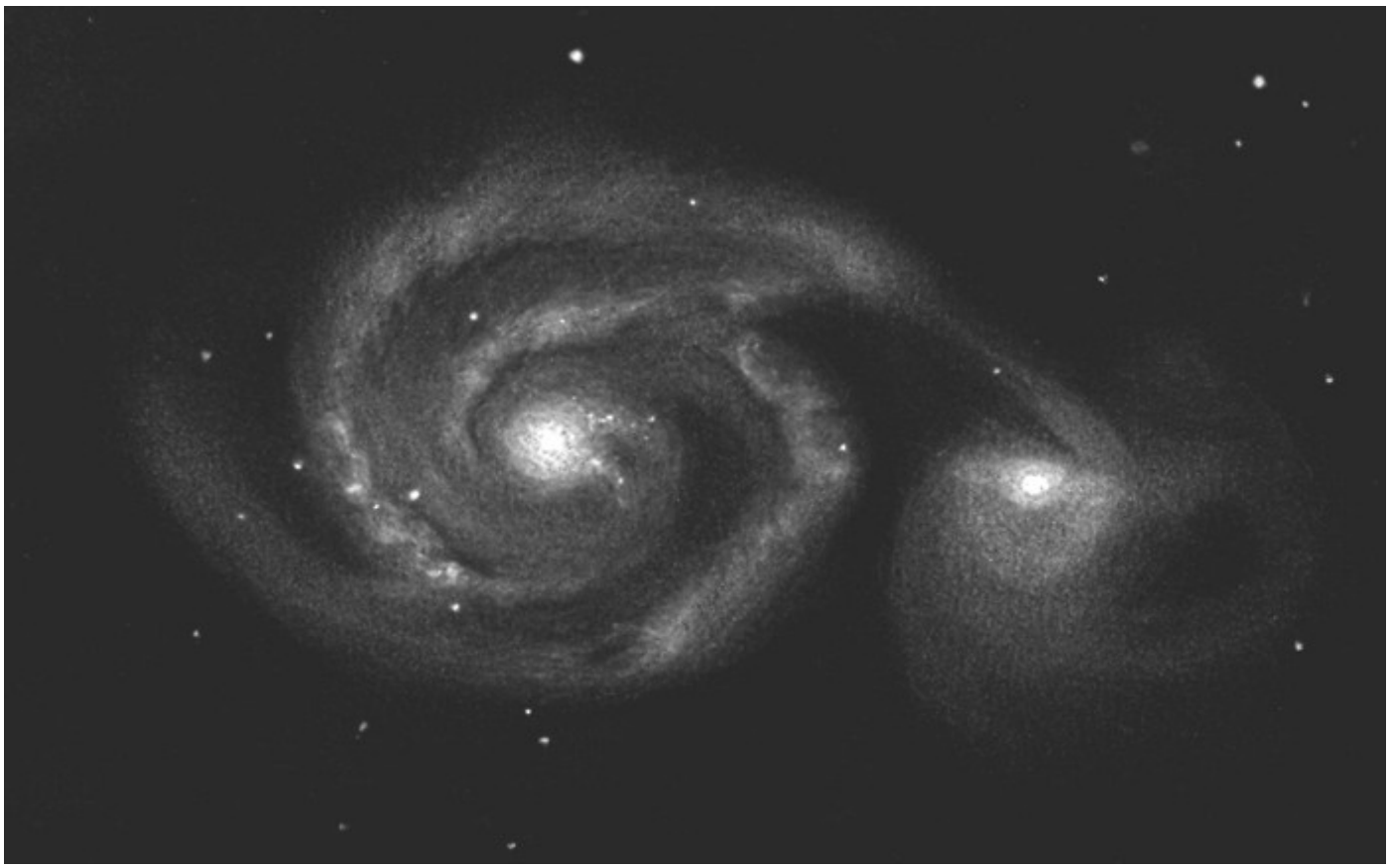
After observing the Whirlpool for about five to ten minutes at low to medium powers (105x to 253x) I began lightly sketching by starting at the brightest and most distinctive areas. I then extended the light sketch marks out until the basic form was captured. This took some back and forth to get the proportions correct, and involved one do-over. A good eraser was as valuable as using the right pencil.

Once the full form was adequately sketched in I started paying attention to small scale details, again working from the brightest area outward. At this point I'm using higher powers as the seeing allowed. Specifically, I used magnifications from 408x to 816x, but most of the time I was in the 408x to 438x range. To see the most stellar-like points I used 710x to 816x.

(Text continued on page 8)



28 inch f/4, seven hours of observation 6/09 to 7/10, 135x to 816x, no filters – negative image.



28 inch f4/. Same sketch, positive image. Sketches by the author.

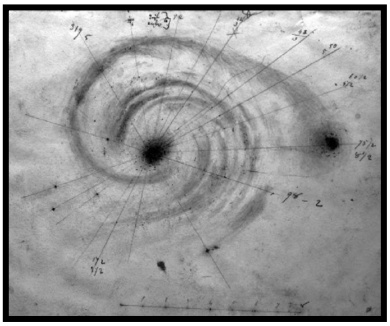
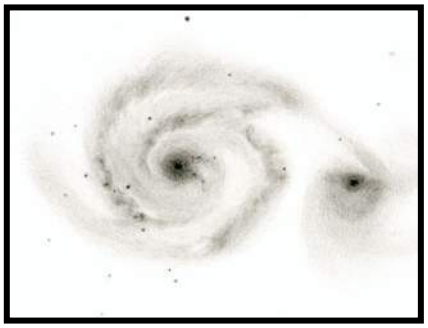
(Continued from page 6)
In this sense I used a system not all that dissimilar to Lord Rosse. He used his 36 inch scope to start his sketches at a low power and used the high power views through the 72 inch to fill in the details. I'm fortunate to be able to get both low power and high power views through my 28 inch scope.

I built up the basic outline and filled in most of the major details within the first two hours of my sketch in June 2009. Up to this point I hadn't actively consulted high resolution photographs. The next five hours of observing and sketching were spread out over four different nights in May and July 2010, and at times I used photos of M51 to help track down subtle and faint details that would have otherwise been missed. My sketch was made almost entirely at the eyepiece, with only some blending of discrete pencil lines and cleaning up the star points done later.

The most subtle detail I detected with my 28 inch without specific photographic aid were the dark lanes running on the inside of the main spiral arms. Regardless, I knew they were there even though I wasn't looking for them at the time they were noticed. I was even more surprised the first time I resolved stellar points near the core in 2006. That was completely unexpected because most images of M51 are burned out this close to the core.

More to the point, I was familiar with the overall shape and texture of M51 even before I made my first sketch of it in June 1974 with my 8 inch f/4 scope.[6] Knowing what to expect when observing a faint object can make a huge difference and this gave me a tremendous edge over Lord Rosse in terms of making an accurate sketch. In other words, if I couldn't do better than he did with my advantage of foreknowledge supplied by modern photos I would either be an inattentive observer, unskilled with a pencil, or both.

Knowing our respective sketching techniques, assuming the brightness of M51 was essentially the same in both his 72 inch scope and my 28 inch scope, and knowing he had much greater resolving power with the 72 inch, let's line up his first sketch next to mine and both next to a color photo.


Aside from the points of comparison already noted, see how the two main spiral arms curve over the top of the main nucleus in the same way in both sketches but don't quite connect to the main nucleus. In fact, if you squint a little you may see that the overall look of both sketches becomes even more similar.

The straight, detached portion of the spiral just below right center of Lord Rosse's sketch is also interesting to point out. This corresponds to the straight portion of the spiral arm in the same relative position in my sketch and the photo. If Lord Rosse had connected this part to the main inner spiral arm as shown in my sketch and the photo, his sketch would look dramatically more accurate. This is one of the brighter areas of the spiral arms so I'm surprised he missed it.

I'm particularly struck by how he drew the radial areas along the bottom left of his sketch. I barely show any of this detail, and indeed that one radial bit I drew was very faint and difficult to see on my 28 inch. But they show up well in the photo, as they did through the 90 inch Bok telescope.

[6] Interestingly, that 1974 sketch surprises me today by bearing more of a resemblance to Herschel's "ring nebula" sketch than showing any real spiral structure.

Even so, he didn't draw the faint continuation of the lower spiral arm as it sweeps along the bottom center to bottom left in my sketch and in the photo. This is a relatively faint area but it does show up quite well when the sky in dark and transparent.

Visually, the connecting arm to the companion galaxy, NGC 5195, is more tenuous than the photo or Lord Rosse's sketch suggest, but the overall flow of the spiral arms are similar in character in both sketches and the photo. Lord Rosse delineated more detail within the spiral arms than I did, and although it's not strictly consistent with the detail seen within a modern photo, it is consistent with the resolving power of the 72 inch telescope. I imagine this was the type of detail that was added by memory, as my view of M51 with the 90 inch Bok telescope showed the spiral arms to be overwhelmed with detail of this type.

However, even a trained artist would find it a difficult, highly technical challenge to accurately portray this enormous amount of detail. The fact that Lord Rosse saw so much detail and accurately portrayed it in his first working sketch is impressive, especially since he had just broken through his preconception of M51 being a ring nebula and was seeing the completely unexpected spiral arms for the first time.

His first sketch dramatically shows the conceptual flaws in his latter attempt to improve accuracy with group sketching as shown in the 1850 Whirlpool engraving. You never know until you try something new whether it will work or not, so kudos to Lord Rosse for giving the group approach a try. Too bad it didn't work, he was much closer to the real appearance of M51 with his very first attempt.

What my sketch shows most clearly is that I saw what I expected to see. Armed with deep, full color images of M51 to help ferret out faint details, I was able to see or detect almost all the main features shown in those images, which also means that in some ways I saw more than Lord Rosse rendered in his sketches.

~ Conclusions ~

Finally, let's look at how all this boil down to answering my questions and how those answers impact the accuracy of my hypothesis. My questions were answered well enough through my research, but once I found the original April 1845 sketch the focus of my questions was broadened to include it and the famous 1850 Whirlpool engraving:

1. For Lord Rosse's first working sketch at least, he was trying to make an accurate sketch but it also included his impressions of the fainter detail.
2. He made the first working sketch himself as well as the second, finished sketch he showed at the June 1845 BAAS sketch. Even though he made the final drawing, the 1850 Whirlpool engraving is a composite that's the result of a collaborative process.
3. The first working sketch was built up over several nights and he used both the 36 inch and 72 inch telescopes. The 1850 Whirlpool engraving is the work of many nights and several observers.
4. He had a defined process for sketching that evolved from originally using both the 36 inch and 72 inch telescopes by himself, to a collaborative process that he hoped would improve accuracy.

Strictly applied, my hypothesis[7] is correct concerning the original April 1845 working sketch, but not so much to the 1850 Whirlpool engraving as was my original intent. But so what? Much more importantly, Lord Rosse overcame a strong preconception that M51 was a ring nebula, and within a month of first observing it with his new 72 inch telescope discovered the remarkable and completely unexpected spiral structure that gave M51 its common name, the Whirlpool Nebula. He made an historic scientific breakthrough.

His original working sketch shows the overall spiral form and the major features quite well, and although they aren't completely faithful to modern images he came pretty darn close, especially considering he had no reference to guide his efforts. I wonder how I or anyone else would have fared under his 1845 circumstances.

(Continued on page 10)

[7] "…whoever made the famous sketch of M51 did so at least partially from memory and therefore the sketch was as much an impression as it was an attempt to render what was actually seen".

Lord Rosse's preconception of M51's shape as a ring nebula in March 1845 makes the faithfulness of his first sketch all the more remarkable, and his discovery of M51's spiral structure as shown in his original representation even more worthy of our lasting admiration. As such, it's my hope that his original working sketch gets the attention it deserves as the discovery image of spiral structure in M51.

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Special thanks to Peter Abrahams for his sage advice and helpful suggestions.

The Season for Giving

Giving Back to Your Astronomy Club

By Tom Koonce
December, 2010

The holiday season is here once again. It's a time to recognize those in need and for giving to others. With the fun that I 've had through the years with my astronomy club and fellow amateur astronomers across the country, I started thinking about ways that I might give something back to amateur astronomy. You know that running any organization is a lot of time and work, so you can imagine that our club leaders would be appreciative of any help that is offered. I realized that the best gift I could give to the club would be to step up and help out with an aspect of the club that fits into my schedule. If this sounds like something you're interested in doing too, I have a few ideas for you to consider.

It's surprising how many astronomy-related bits and pieces that we accumulate that we haven't used in a long time such as basic amateur astronomy books, old binoculars, our first eyepieces, and perhaps an old telescope. Consider donating items like these to the club to be gathered up into a potential Spring garage sale for the benefit of the club's treasury. Maybe this could jumpstart the club savings for the summer picnic or piece of equipment that all members could share.

Even if you don't have items to donate, consider donating the benefit of your amateur astronomy knowledge by volunteering to teach a 30 minute to 1 hour class on the area of astronomy that interests you. If enough people wanted to teach small classes, perhaps a Saturday event could be put together that would really interest and excite members!

Even with no preparation, acting as a "Star Guide" mentor for a new member is a way of giving that means a lot. We all remember the first experienced club member who showed us the ropes when we were beginning in astronomy. Why not be that memorable mentor for another person?

I always find it interesting to read the newsletter when someone has written up their observing session. It doesn't have to entail the discovery of a new comet or anything, just the simple observations. (Of course a discovering a new comet would be a pretty nice write-up!) A photo, sketch or even a star map of the area that is being discussed is a plus, but not required. Give back to the organization by summarizing your next observing session and share the evening with your fellow members.

If schedule is tight, giving even a bit of your time is appreciated. For instance, a nice gesture is to assist with greeting people at the monthly meetings. Many clubs do this as a way of welcoming new and long-time members at the door. If you would like to help increase club membership, making others feel welcome each month and taking a personal interest in them is one of the best ways.

If you have a bit more time, you can help the club out by volunteering to help on a committee or (longer term) running for an officer position to give back to the club in tangible ways that are also rewarding for the volunteers. Frankly, sometimes these are positions that can get a bit stale if the same people are in them again and again. If you are one of the people who have been in a particular job in the organization for a while, thank you for all that you do! Consider mentoring another person to take on this position while you try out something different. The club needs you! But changes can keep the organization fresh and vibrant and it will keep you excited about why we're involved in the first place… because it's fun. It might be a gift that both you and the mentee could give for the long term vitality of the club. Happy Holidays to you and your families. Clear Skies! - Tom

AN ENIGMATIC STRUCTURE IN OUR LOCAL UNIVERSE

by Leo Cavagnaro

A Fascinating Region in the Large Magellanic Cloud to Explore in Detail Through Amateur Telescopes

Part 1

Our neighboring galaxy embraces in its northern portion a region not well known by amateur observers. It is an interesting subject with an enigmatic formation history. The structure I refer to is a large supergiant shell, a kpc-sized ring of HII regions dubbed LMC-4 by J. Meaburn (1980). You will see some names that are not well known when we discuss this region in the article but do not be concerned. Most of the components of LMC-4 are visible in a telescope as small as 8-inch. The region can even be glimpsed using, for example, common 10x50 binoculars.

Uspallata Valley (above) and "La Carrera" (right). Good places in Mendoza to observe the southern starry night skies.

I felt really excited when I saw this region for first time from "Paramillos", a magnificent observing site in the Los Andes Mountains, just a few kilometers northeast of Uspallata Valley. This site offers very dark skies at about 9,000 feet above see level.

A lot of papers about the origin of LMC-4 can be found on some specific web sites like **www.arxiv.org** or **"The Astronomical Journal" (www.aj.aas.org).** We can get our "amateur -side vision" using just our eyes and optical devices. As an amateur, I can observe one of the most enigmatic regions, unique in the nearby galaxies population. Backyard observers can also see objects that at first glance seem hard to do with small and mid sizes telescopes.

Some years ago I decided to go a step further and observe deep-sky objects other than NGC and Messier objects. For example, the Observing Project on RCW nebulae around the great Eta Carinae Nebula was a great experience. I can now say that although those kinds of objects are usually small and faint, they are sometimes within reach of an

8-inch telescope for example, making it possible to test your instrument...and your patience!

I needed three nights to observe a 1.12 degree field given by my telescope in this region with different magnifications and filters. The last night I observed the galaxy from a new observing site in "La Carrera", close to a small town named Tupungato, about 70 miles southwest of Mendoza City (latitude -33° 11´ 30", longitude 69° 16´ W).

An Overall View of the Region

So far, I have observed most of the LMC-4 as part of a big observing project on the Large Magellanic Cloud (LMC) I am currently carrying out. The viewed region includes the biggest stellar arc and a single HII region there including also other objects visible in the field. In part 2 of this article I will include my reports about the observation of another stellar arc in LMC-4, the so-called "Sextant".

This region is situated between the stars θ and δ Doradus (visual magnitudes 4.8 and 4.3) which are clearly visible with the unaided eye from a dark sky site and labeled in any sky chart. Thus, these stars can be used as references to find the area in the galaxy where this zone lies. Also, if you recognize the 30 Doradus complex (Tarantula Nebula), you can find LMC-4 moving your telescope about 2.5 degrees away to the north-northwest.

The region contains several structures noteworthy enough to be given names (read more in the paper **"A Comprehensive Look at LH72 in the Context of Supergiant Shell LMC-4"** by **Knut A.G. Olsen *et. al.***). I personally enjoyed observing this part of our satellite galaxy because several structures and tiny open cluster can be found there.

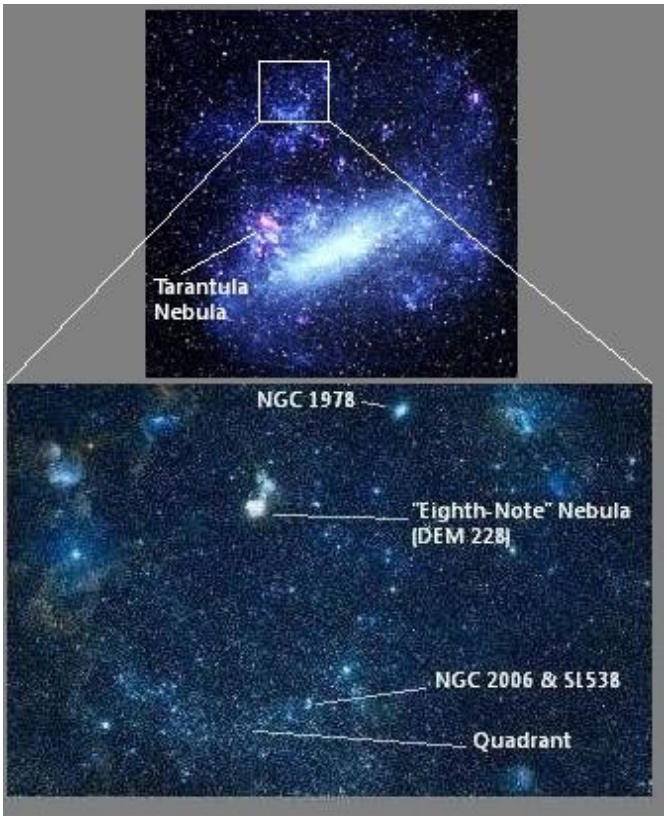


Image from Sky-map.org. I have labeled some of the most interesting objects to observe there. Upper picture by Steve Mandel and John Gleason (north is up)

At low magnification (42x in my telescope) the field was very interesting showing stars with a range of brightness. The brightest ones were situated in the northeast part of the 1.12 degrees wide field given by my eyepiece. In the region indicated by the blue ellipse in **Figure 3** (page 13) several fainter stars appear embedded in nebulosity. Moreover, some hazy patches are visible on the edge of the eyepiece field.

NGC 1978. North in the field (see figure above in this page) lies a bright globular cluster in the LMC. NGC 1978 is, for a globular cluster, rather elliptical which had been explained by a merger origin (read more about this object in the paper " **NGC 1978 in the LMC: The Cluster and Surrounding Field"** by **D. J. Bomans *et. al.***). Discovered in 1826 by James Dunlop, NGC 1978 is clearly visible at 42x, but round at this power through my telescope and with a small core seemingly a little brighter than the outer parts. It was more beautiful to observe it at 78x, very obvious in the field of view of this eyepiece, also round and rather smooth in appearance (Concentration Class V). At 106x you can see this cluster elongated and rather smooth in brightness with faint outer ends in the direction of its elongation.

About 19 arc minutes to the west and situated at the edge of LMC-4 we find a region labeled **1** in **Figure 2**, NGC 1948, a cluster with nebulosity according to Wolfgang Steinicke's Revised NGC and IC Catalog that looks like an interesting nebula structure easily visible at 42x without a filter appearing round in shape and with a number of stars present there. A careful observation and the use of averted vision made it possible to detect a faint arc-shape nebulosity spreading in the zone enclosed by the blue ellipse in **Figure 2**. Some stars are also visible there, with clearer view of this part at 106x. Also in this figure, the stars within the red ellipse seem to be surrounded by a faint nebulosity. At higher magnification (78x) the stars in NGC 1948 look embedded in nebulosity, round in shape and being the most prominent part of the mentioned wider structure that reaches the asterisms labeled **3** (see **Figure 2**). The nebulosity is fainter in the middle part of the structure. An even fainter nebulosity seems to be situated toward the northwest side of the area (upper right corner in lower panel in Sky-map.org picture). At 106x a small zone of nebulosity which is more conspicuous and bright is visible coincident with the position of NGC 1948 in **Figure 2** on the western edge of the stellar swarm. A UHC filter improved the view of this area.

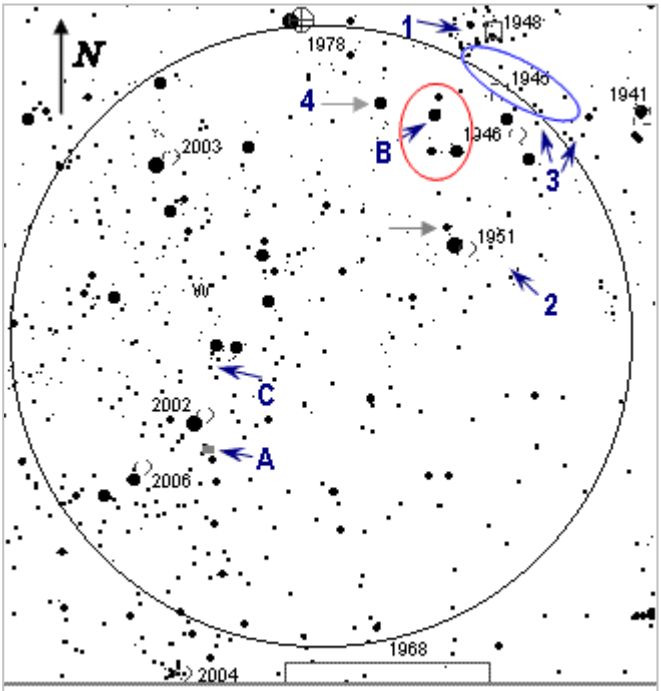


Figure 2

NGC 1951, an open cluster, looks like a small patch of smooth bright nebulosity (maybe like a small globular, or like a slightly defocused star?). You can see it easily at low magnification. I got the same view at a little higher power (78x).

Close to this stellar cluster using averted vision I could see, for moments, a very faint and irregular nebulosity (**2** in **Figure 2**) that I also observed at 78x while viewing some stars embedded there. I had a similar view at 106x with very faint stars embedded in a very faint nebulosity. The use of a UHC nebular filter did not help to improve the view at least at that last power. Looking at the DSS image, some stars seem to be there. At 78x, on the northeastern edge of NGC 1951, and using averted vision and for certain very hard to see, some faint stars seems to lie (the arrow in **Figure 2** indicates the position). A group of stars lies very close to NGC 1951 (to the west). At 106x, NGC 1951 looks bright and interesting but small (we are observing extragalactic clusters!).

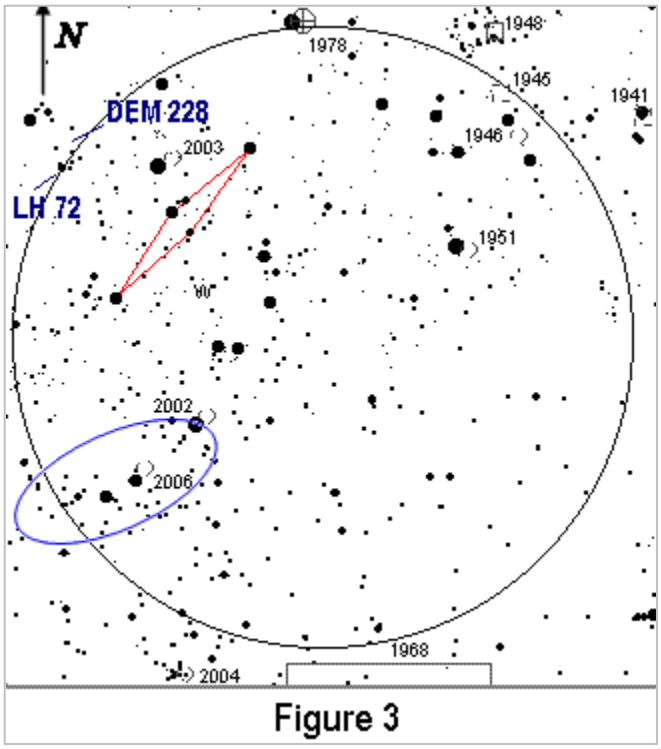


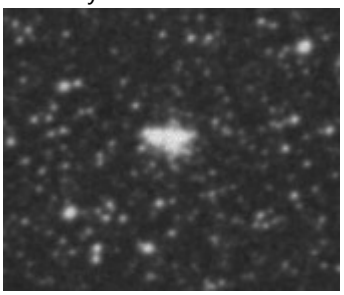
Figure 3

NGC 2003. On the other hand, this 11.3 magnitude open cluster, discovered in 1834 by John Herschel, appears even smaller than NGC 1951 at low magnification, so it was necessary to know its position in advance among the surrounding stars to find it. The pattern of stars marked with red lines in **Figure 3** helped me to recognize the cluster. At 42x it looked like a small star surrounded by nebulosity but bright enough to be seen through an 8-inch telescope. At 78x the cluster was clearly seen looking small and round with a brighter core and a fainter periphery. Observing with averted vision a very small star was visible very close to the cluster.

At 106x this cluster is obvious at a first glance as a small hazy and little elongated spot. The faint star is again visible very close to this cluster.

NGC 1941. This object is labeled as a dark nebula in the old version of Skymap Pro 6.0 (upper right in **Figures 2 and 3**). However, in the interactive charts in Sky-map.org (**www.sky-map.org**) it appears a bright nebula. Using 78x I saw a small group of stars associated with a faint an irregular nebulosity where this object should be, achieving the best view using averted vision.

NGC 1946. This is a 12.6 magnitude open cluster according to the NGC/IC Project. It is a very challenging object for an 8-inch telescope. It was hard to see at 78x and even at 106x, appearing very small and faint. For very brief moments this object looked sharper and similar to the cluster in **B** (**Figure 2**) which looked like a small hazy spot at 78x with a brighter core using averted vision when I observed it at 106x. Two asterisms (**3** in **Figure 2**) were useful to identify NGC 1946. The asterism to the right looked beautiful and reminded me of the profile of a drop.



Also in this figure, I have indicated with number **4** a very small and elongated nebulosity appearing in DSS images (left here) similar to a bipolar planetary nebula. I do not know if it appears in a deep-sky object catalogue. I tried to observe it using my telescope. At 78x I just could see a star that I identified using two faint stars situated to the north of this target. Using averted vision there seems to be a pair of faint stars but I could not see the nebula and the shape shown in the image here at all.

Approaching the Stellar Arcs...

After observing some of the clusters and nebulae in the field of view, I aimed the telescope to the south part of the zone reaching the western edge of the biggest arc in LMC-4.

James Dunlop Observed the Southern Skies from Australia in the 19th Century.

NGC 2002. The identification of this cluster was not easy. Using some stars in the area I could see it looking almost stellar at 42x. Higher power should be useful for a better view and analysis of this LMC object. 106x worked very well to see this open cluster. It is a compact, small and rather bright (10.1 magnitude, 2arcmin in size according to the Wolfgang Steinicke's Revised NGC and IC Catalog) appearing in my eyepiece like a small defocused star or a star with nebulosity. A small and faint nebulosity is visible with averted vision close to this cluster (letter **A** in **Figure 2**) and also a small hazy object in **C**. It was discovered in 1826 by James Dunlop using a 9-inch telescope and appears in a list of 244 objects compiled by Hartmut Frommert as Dun 214.

Stellar Arcs. Shapley´s Constellation III

About 53 arc minutes southeast of NGC 1978 and about 1.7 degree southwest from the star δ Doradus lies the biggest stellar arc of clusters and young stars in LMC-4, known as "Quadrant" (Shapley´s Constellation III?), receiving this name because it is a quarter segment of a ring. It consists of Lucke & Hodge (1970) associations LH 65, 77 and 84 and is often referred to as LH 77.

Through an 8-inch telescope working at 42x it looked like a large arc of stars and nebulosity with some brighter stars situated in the eastern part (left in **Figure 2**). The groups indicated with α in **Figure 4** looked like short

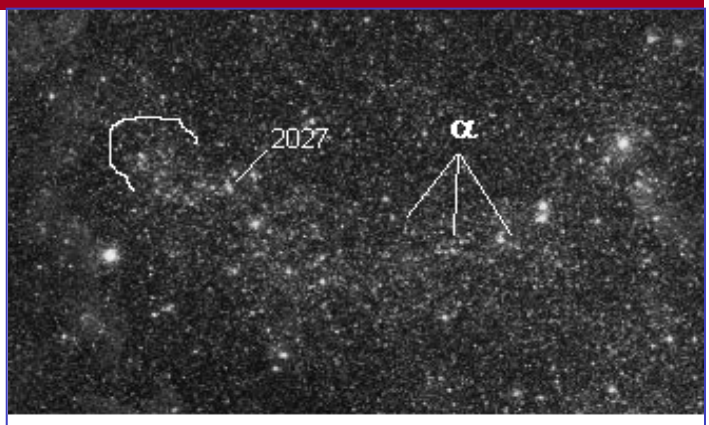


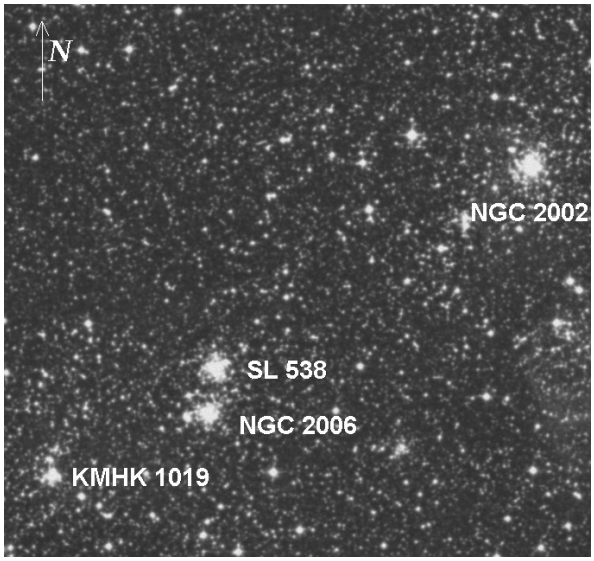
Figure 4

The arc of stars known as Quadrant

chains of very faint stars. The easternmost part of the Quadrant (left in **Figure 4** where North is up) shows faint nebulosity reaching the edge indicated with a white line, where several faint stars are visible in the field. There is an elongated zone which looks brighter just in the region where the objects NGC 2027 and NGC 2034 are situated. Southwest of this arc there is another one, smaller and brighter, known as "Sextant". I will include my observing reports about it in the second part of this article. The Quadrant and Sextant arcs are indeed unique features; there is nothing similar in the LMC and similar arcs of star clusters have not been reported elsewhere either.

What is wrong with Constellation III?

There are some differences about which part in this region is really Shapley´s Constellation III. The brightest of these arcs was first noted by Westerlund and Mathewson (1966), who wrongly identified as Shapley's "Constellation III"; nowadays it is known as association LH77 or "Quadrant". Van den Bergh (1981) called the whole LMC -4 region Constellation III. On the other hand, McKibben Nail & Shapley (1953) designated NGC 1974 as the identifier of Constellation III, including an area of 28′ x 28′ around NGC 1974, a cluster with nebulosity according to the Wolfgang Steinicke's Revised NGC and IC Catalog. According to these researchers, Constellation III is a triple cluster, so they were probably referring to Sextant in which the eastern part of NGC 1974 lies. You can read more about this in **section 2 "Stellar Cluster Arcs"** in the paper **"Triggered Star Formation in the LMC4/Constellation III Region of the Large Magellanic Cloud"** by **Yuri & Bruce Elmegreen.**



DSS image
(http://archive.stsci.edu/cgi-bin/dss_form)

A Binary Open Cluster

Located Northwest of the OB association LH77 and within the arc "Quadrant", a pair of open clusters that actually looked globular through my telescope are visible at low magnification (42x) if you observe carefully the area about 7 arc minutes southeast of the cluster NGC 2002. I am talking about NGC 2006 (also SL 537) and SL 538 that have a projected angular separation of about 55 arc seconds. They looked like two very small round formations very close each other. What surprised me is the fact that just one of these clusters has a number in the NGC catalogue, when both of them are clearly visible at low magnification through an 8-inch telescope and look very similar in size and brightness. I checked an image of the pair (figure 1 in the paper **"The Cluster Pair SL 538/ NGC 2006 (SL 537)" (1998)** by **Andrea Dieball** and **Eva K. Grebel**). There you can see that the NGC cluster is the southernmost one and "is the fainter member of the pair". The northernmost cluster (SL 538) looks a little brighter and more compact. The other one (NGC 2006) is a little bigger, fainter and more dispersed. The difference is not so clear in the DSS image here showing the pair. As far as I know the brighter cluster does not have an NGC number which surprised me as I said. A possible scenario is that the designation NGC 2006 is for both clusters, but the original summary description for NGC 2006, **Cl, eL, vRi, vBvSNM (Cluster, extremely large, Very Rich, Very Bright and Very Small Nucleus in the Middle)** does not mention a double nature of this object. For understanding the "Summary Description" visit **http://www.ngcicproject.org/abbrev.htm**

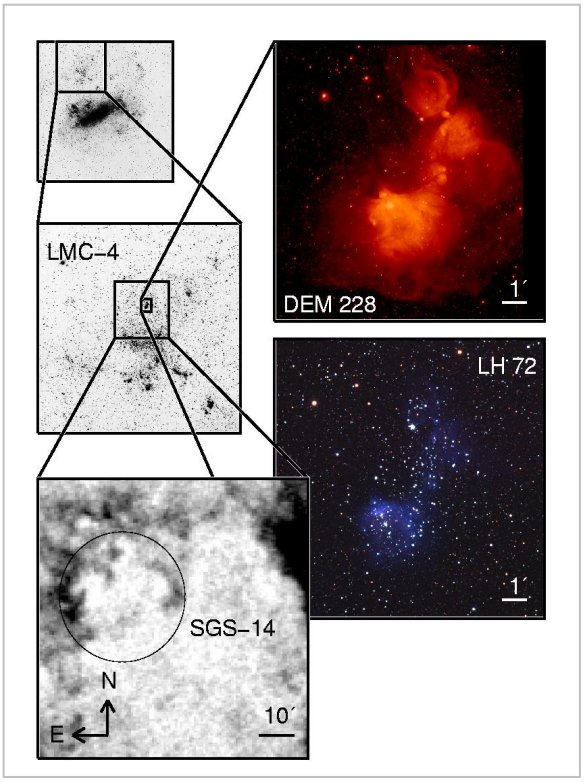
In the paper, the authors state that they saw an enhanced star density between SL 538 and NGC 2006. This may indicate a stellar bridge and thus gravitational interaction between SL 538 and NGC2006. Thus, we can be talking about a real binary open cluster. I think maybe it could be a much smaller, compact and extragalactic version of the "Double Cluster of Perseus".

At 106x both clusters looked very similar with some difference in brightness. Maybe the best magnification to see this pair was 148x. At this power you can better see the small difference in sizes between the members.

About 4 arc minutes to the east-southeast of the pair and visible in my 8-inch dobsonian is another small cluster, known as KMHK[2] 1019. It is of similar brightness to the fainter cluster of the pair.

The OB Association LH72 and the "Eighth-Note" Nebula

In the northeastern corner of the field of view (**Figure 3**) and about 1.4 degrees southwest of the star δ Doradus I found perhaps the most interesting structure in the entire region, the OB association[1] LH72 (RA 05 32 12.00 Dec. -66 27 00.0) and its associated nebula DEM 228 (Davies, Elliot & Meaburn, 1976). This nebula, also known with the more friendly name "Eighth -Note" was visible without a filter at 42x. I have indicated with the letter **A** in **Figure 5** the brighter and most prominent part visible in my telescope, looking round in shape and with a central core even brighter and containing star-like dots. A view with higher magnification was necessary to see these details. These dots maybe star members related to the nebula (LH 72). Using averted vision I could see the nebula more clearly extending to the north-northwest, reaching the 11.6 magnitude star TYC 8891-3384-1, and suggesting to me the characteristic shape you can see in the deeper images of these objects.



Images of LH 72 and DEM 228, showing their relationship to SGS-14[3] and LMC 4.
Courtesy of Knut Olsen (NOAO)*
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At 78x the view was similar with the round prominent zone where some stars possibly belonging to LH72 can be seen within and the extension of the nebulosity following the shape and distribution indicated in **Figure 5**. Through a UHC filter an extremely faint nebulosity seems to reach the bright stars in the upper left corner of **Figure 5**, however no nebulosity is visible at all in the DSS image. In **C** a little brighter patch was visible in my telescope matching well with the photos of this object.

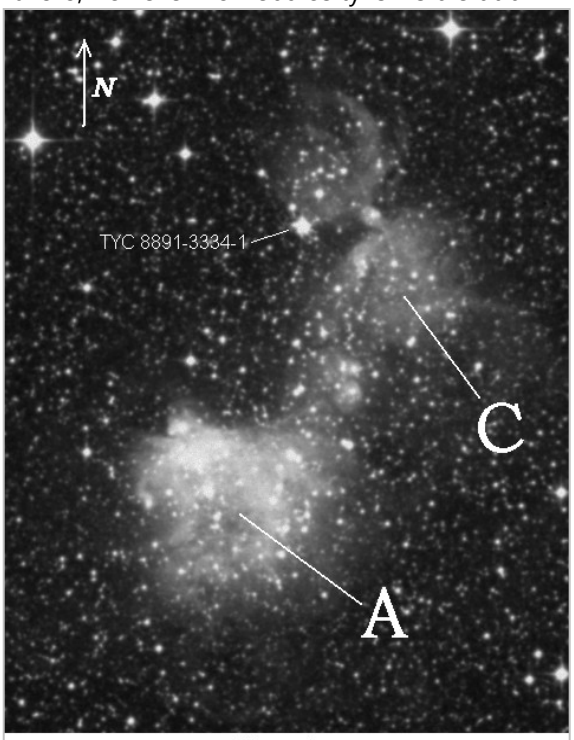


Figure 5

DSS image
(http://archive.stsci.edu/cgi-bin/dss_form)

Finally, I observed DEM 228 at 106x with the galaxy about 31 degrees of altitude under a good, but not exceptional, dark sky. At this power the nebula was also visible without a filter. Matching with the description at lower magnification, the most prominent nebulosity surrounds the association LH72 and appears a little elongated in the direction NW-SE at this magnification. Using a UHC filter at this magnification, the zone in LH72 looked rather round with an inner part a little brighter.

This HII region does not appear in well known planetarium software and sky charts like Skymap Pro 6, SkyAtlas 2000, Skycharts, and etc. The book "Uranometría 2000.0 Volume 2 by Tirion, Rappaport and Remaklus also does not indicate the nebula but roughly shows the position of LMC-4 in the LMC with the symbol "X" in a detailed map of the galaxy on page 212. I definitely think that DEM 228 or "Eighth-note" nebula (call it as you want) is an LMC object to include in your list when you observe this galaxy.

The descriptions of all these objects were made while observing them with the galaxy at an average altitude of 35 degrees in the sky. The objects could be seen even sharper with the galaxy at its highest (about 53 degrees during the transit) and of course using larger telescopes and always with a well dark-adapted observer.

Whether you are observing at a star party or just alone in a field, remember that when you observe these arcs of stars you are looking at a very unique structure not found elsewhere in our local region of the universe!

Scenarios for LMC-4´s Formation

An infalling high-velocity cloud might compress the gas in the LMC disk and so trigger star formation.

In the stochastic self-propagating star formation scenario the stars formed initially trigger further star formation in their vicinity.

Star clusters or γ-ray bursts may trigger star formation to form arc like structures.

The motion of the LMC through the Milky Way halo leads to a bow-shock triggering star formation.

* A special thank to Knut Olsen, the author of a paper about LMC4 and Jill Membrey, the American Astronomical Society Managing Editor, for authorizing me to include a picture from that paper in this article.

Thank you to Rose City Astronomer Jan Keiski for being my grammar checker.

1_ **OB Association**: The concept of a stellar association was originally introduced in 1949 by V. A. Ambartsumian, who later separated them into OB and T associations (Ambartsumian 1968). Morgan, Sharpless, & Osterbrock (1952) considered as a stellar association any loose group of stars within an area where bright OB stars exist and with evidence of a common origin.
A recent definition of a stellar association (Kontizas et al. 1999) refers to it as a single, unbound concentration of early-type luminous stars, embedded in a very young star forming region.

2_ **KMHK** refers to a list of LMC clusters published in 1990 by M. **K**ontizas, D.H. **M**organ, D. **H**atzidimitriou and E. **K**ontizas (Astronomy and Astrophysics Suppl. Series, Vol. 84, p. 527).

3_ **SGS 14** is an HI (neutral hydrogen) Shell

New RCA Club Calendar

When is the Trout Lake Star Party in 2011? If I get a telescope for my birthday will it be near the full moon? These questions and more could be answered with a new 2011 RCA calendar.

We are pleased to announce the arrival of our new Rose City Astronomers wall calendar.

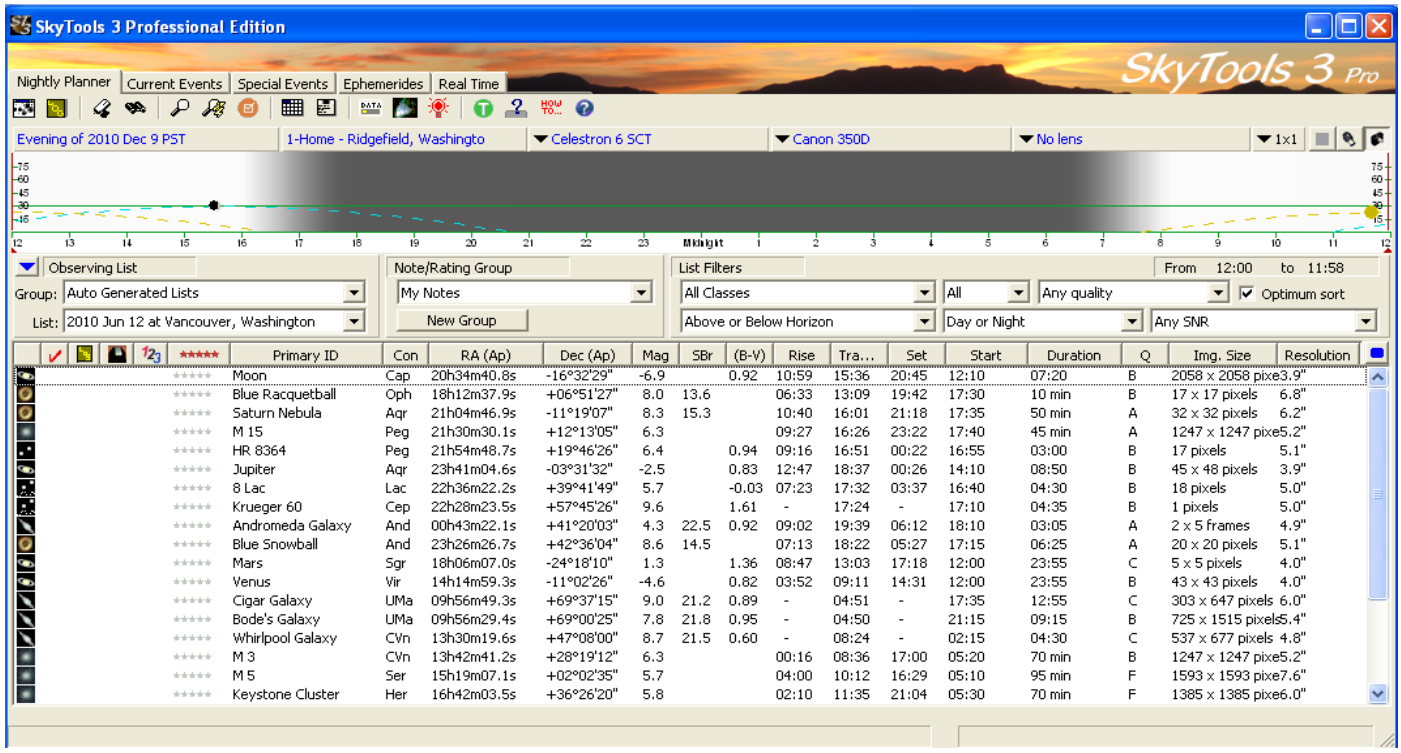
The calendar features photography from many of our club members. It also features the dates for scheduled star parties for the Rose City Astronomy club and selected regional star parties.

The calendars will be available beginning in December at the Sales Table.

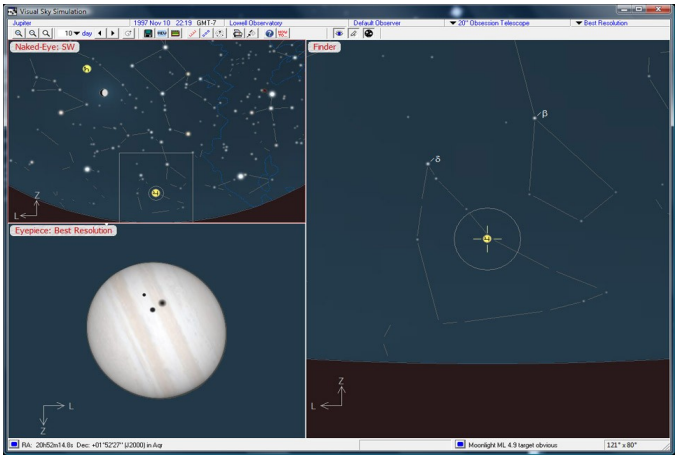
MAY 2011

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

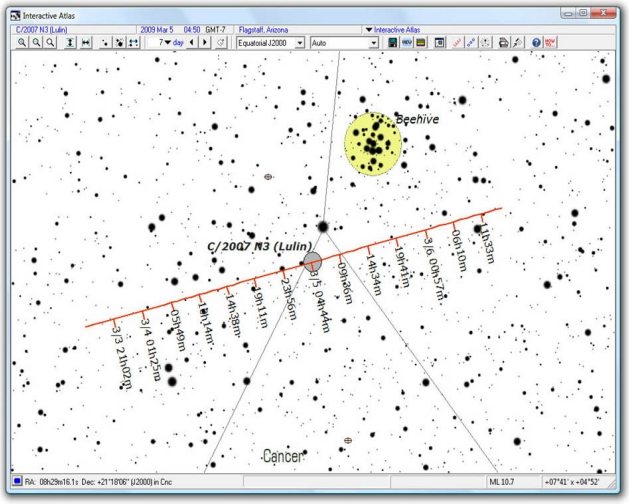
Need help with SkyTools?



Then why not learn from the person who wrote the software himself?



Greg Crinklaw, the author of SkyTools, has agreed to come to Portland to teach us the nuances of his spectacular software package in person. His class will be held on Saturday, March 19. Greg is planning to teach two sessions -- a morning session on visual astronomy and an afternoon session on imaging. The focus of his class will be a list of "power tips" that he has been compiling. The cost of pre-registering to attend one or both sessions of the class will be $20 per person. The fee is solely intended to help with the costs of bringing Greg out and holding the class. The class will be limited to 50 people. If space is available at the time of the event, it will be possible to pay at the door for a charge of $25. We will start a waiting list if we run out of space beforehand.

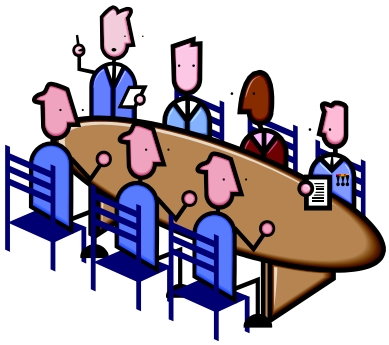


For people new to SkyTools, I will also be teaching a preliminary class to acquaint people with the basics of the software so we can make the best use of Greg's expert time. This class will be held on Saturday, February 19th. The fee for this class will be $5 for pre-registration and $7 at the door to help cover associated expenses. There is also a limit of 50 people for this class.

Both of these events will be held in the OMSI Auditorium and both will be during a full moon. There will be a link to the registration page for both classes on the club web site (http://rosecityastronomers.org) in the near future.

If you have any questions or suggestions for topics to cover in either class, please let me know at: skytools@rosecityastronomers.org.

Thanks! Mark Martin



Minutes of the Rose City Astronomers Board October 4th 2010

Board Members Present

Sameer Ruiwale (President)
Ken Hose (VP Membership)
Matt Vartanian (VP Observing)
Dawn Willard (VP Community Affairs)
Larry Godsey (Treasurer, Webmaster, Magazine Sales)
Duncan Kitchin (Secretary)
Larry Froberg (Sales Director)
Diana Fredlund (Media Director)
Howard Knytych (New Member Advisor)
Jan Keiski (Library Director, OMSI & Sister Clubs Liaison)
David Nemo (Observing Site Director)
Scott Kindt (Special Interest Groups Director)

Margaret Campbell (guest)

Call to Order

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

Approval of Agenda

The agenda was approved by unanimous consent. Moved : Duncan. Second : Howard. One modification – add item to discuss Starlight Parade. Approved 11-0-0.

Approval of Minutes

Moved: Approve minutes from the January 2010 board meeting. Corrections to the minutes were proposed by Larry Godsey, which were accepted. Moved: Sameer. Second : Larry Froberg. Approved 10-1-0.

Directors' Reports

- Secretary's Report – Duncan Kitchin: Quorum (11) met with 11 voting members present.

Treasurer's Report – Larry Godsey: Account information through September provided. Shows income and expense for this year, budget for this year and what had been spent at this time last year. Everything proceeding according to plan. Additional details, including monthly PayPal statements are available on the board website.

- VP Programming – Matt Brewster: not present.
- VP Observing – Matt Vartanian: Star party this weekend at Camp Hancock. Should have about 40 people there, which is a big turnout. This is the last star party scheduled this year. Some discussion on the pricing – cost of $45 per night may have driven some people away. The price is the same for an RV site as for a bunk. This is what we need to be taking in on average to cover our costs. Based on the number of scope sites, we can't accommodate more than 50. Next year there will be two Camp Hancock star parties. New draft of schedule has been sent out. When will the schedule be final? We need anything for the calendar to be available soon (details to be discussed later). Kah-Nee-Ta confirmation required. After that finalized, there should be only minor changes. Should be decided in a week or so.
- VP Community Affairs – Dawn Willard: Star party on Saturday (Friday cancelled due to weather). 10 visitors, 6 telescopes. 3 more star parties in the week after next. Thursday is Bridger school. Friday is one that was cancelled last Friday due to weather. Quite a few contact requests.
- Media Director – Diana Fredlund: In the process of putting out a news release.
- VP Membership – Ken Hose: 5 new members joined in the last month, 23 renewals. Total 261. Last year 227. 254 year before. About 25% transactions via PayPal. This may have upped the numbers a little due to the convenience factor.
- New Member Advisor – Howard Knytych: New member meeting at last general meeting. Lively discussion with 12-15 people on the subject of navigating busy skies. No meeting this month. Topic for November to be announced.
- Sales – Larry Froberg: $298 last month. Now have new order of sweatshirts & t shirts. Programmable name tags – ordered 40. Will be available at the next meeting. Larry Froberg will send instructions to Larry Godsey to be posted on the website. Volunteers – had two volunteers, but one was unable to make it, and may be moving away. Did find another volunteer, and one more potential volunteer.
- Book Library – Jan Keiski: Book sale scheduled for November meeting.
- Telescope Library – Greg Rohde: not present
- IDA – Dawn Nilson: not present
- Magazine Subscriptions – Larry Godsey: Nominal
- Webmaster – Larry Godsey: Removed 130 people who hadn't renewed from the forum. Of those, 111 had not posted on the forum in the last two months. 23 for whom Larry does not have contact details have not been notified.
- Site Committee – David Nemo: Will wait until new business item.

(Continued on page 20)

(Continued from page 19)

- Youth Director - Jean London: not present.
- Newsletter Editor – Scott Kindt: New edition is in progress. Howard Banich has written an article which will be published in three parts. Also have several other contributions, and additional contributions lined up for future editions over the next several months.
- SIGs – Scott Kindt: Lunar SIG has been started up, but looking for somebody to run it. Discussion about Skytools SIG. Consensus that it is unlikely that a SIG could be sustained long term, but there might be materials for 2 or three meetings.
- Alcor – Dale Fenske: not present
- OMSI –Jan Keiski: Have dates for both board meetings and general meetings next year with locations of rooms which are booked.
- Sister Club update – Jan Keiski : GAMA (Grupo de Astronomos Mendocinos Aficionados), RCA's sister club in Mendoza, Argentina, just celebrated their 11th anniversary.

Old Business

Update from 2010 Election Committee – David Nemo. Going according to schedule, elections in November. No additional candidates have come forward.

Review 2011 Star Party Schedule – Matt Vartanian. This has already been covered.

Review Kahneeta Star Party contract for 2011 event – Matt Brewster

Update on calendar printing costs from vendor – Larry Froberg. Looking for coil bound rather than stapled, will cost $7.25 per calendar with the coli binding. This is 8.5 x 11 landscape format for each half – total viewable area of 11 x 17. Some discussion as to sale price – consensus around $12, but we could discuss this at a later time. Shooting for November meeting availability.

Update on image requirements for RCA calendar – Larry Froberg. Have dimensions – images need to be 8.5 x 11, plus 3/16 bleed area all the way around, minimum 300 dpi. Duncan to send out submission instructions. Need finalized by 20th October – RCA meeting. What other information besides star party dates on the grid? SIG dates, board meeting dates, general meeting dates. Propose that we meet after the general meeting to do image selections and finalize calendar items.

Proposal for a cheap tracking mount for the club to purchase to be used for DLSR camera imaging – Ken Hose. After some discussion on the forum, settled on an Orion Astroview with single axis drive. Total cost about $358 plus shipping. Will also need some sort of ball mount for a camera (included in the estimated price). Some discussion about whether a polar scope is necessary; Pat Hanrahan has much experience with this and recommended that a polar scope would be very useful for alignment. Sameer asked to approve purchase of one such setup. Will come out of telescope library budget. Given that Greg Rohde is out of town, it was decided to defer a vote until he is back.

TABLED: Update on proposal for "Think out loud" radio show – Diana Fredlund / Dawn Nilson

TABLED: Create Mirror Making Machine usage instructions – David Nemo / Greg Rohde

Larry Godsey is going to close out the accounts for 2009/10. One speaker check has not yet been cashed from last February. Larry is going to put a stop on that check in order to close out the books. This has to be done soon in order to get filings in to the IRS on time.

New Business

Skyview Acres site – next steps – David Nemo / All. Has started discussion topic on the forum under observing reports. About 8-10 people have participated in the discussion. Probably premature to talk about this as a permanent site. Possible concerns – the site may not be big enough for our needs. May also be some issues with water drainage. David Nemo and Ken Hose also both met with the site owner. Will keep this on the list, but not recommending any immediate action.

2011 Elections nominating committee update – David Nemo. Already discussed.

Celestron 8" OR old Meade 10" donation possibility to GAMA – Sameer / all? Discussed this last time. Everything is in excellent condition. 8" orange tube SCT, plus LX5 SCT, and a large collection of eyepieces. 8" has no tripod or wedge, but 10" LX5 has both. List of donated items sent to Duncan Kitchin. Items are currently stored at TMS. Possibility to donate to GAMA? Leo is traveling back to Argentina in the next week, and would need to take then. Larry Godsey proposes that we instead crate and ship the telescope to GAMA, and pay for the shipping charges ourselves.

Starlight parade update. Margaret has a contact from somebody who has substantial experience building floats, and who has made some suggestions. Will continue to work on gathering design suggestions. Need to finalize by the November meeting.

Zacatecas Visit update (sister club possibilities and feedback) – Margaret Campbell-McCrea. Margaret provided details of her recent visit. Club is extremely busy with getting their paperwork done after recently setting up. Visited archeological site at La Quemada, which the club also uses as an observing site. Site is very dark; club has put on two very large star parties at this site in the past couple of years, and has provided two 8-week classes in astronomy. Suggest waiting for club to become better established before we consider more formal ties, but collaborate on writing articles and continuing discussions in the meantime. Also suggest a follow up visit next March to Zacatecas to explore the observing site. Margaret has provided a lengthy report to Sameer, and is going to submit an article for the gazette.

Adjournment

There being no further business, the meeting was adjourned at 8:42pm.

December 2010

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

January 2011

January 7	Friday	Downtowner's Luncheon	Kell's	Noon
January 10	Monday	Board Meeting	OMSI Parker Room	7pm
January 10	Monday	Astro-Imaging SIG	Beaverton Public Library	7pm
January 17	Monday	New Member Orientation	OMSI Planetarium	6:30pm
January 17	**Monday**	**General Meeting**	**OMSI Auditorium**	**7:30pm**
January 19	Wednesday	Cosmology SIG	Linus Pauling House	7pm
January 22	Saturday	Science SIG	Swan Island	3pm
January 22	Saturday	Telescope Workshop	Swan Island	10am-3pm

The RCA General Meeting falls on the third Monday of each month. We usually meet in the Auditorium at OMSI, next to the Murdock Planetarium. Occasionally the meeting is held in Murdock Planetarium. Check the RCA web site for the latest information.

http://www.rosecityastronomers.org

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