The
Rosette Gazette

Volume 17, Issue 1 Newsletter of the Rose City Astronomers January, 2005

In This Issue:

Hubble Deep Field above courtesy R. Williams (STScI), the Hubble Deep Field Team and NASA.

Moon photos below courtesy David Haworth

All are welcome at the annual

RCA INFORMATION FAIR

Monday, January 17th!

The January meeting features our annual Information Fair. This is a great opportunity to get acquainted, or reacquainted, with RCA activities and members.

There will be several tables set up in OMSI's Auditorium with members sharing information about RCA programs and activities. The library will be open with hundreds of astronomy related books and videos. If you prefer to purchase books the RCA Sales table will feature a large assortment of Astronomy reference books, star-charts, calendars and assorted accessories.

Learn about amateur observing programs such as the Messier, Caldwell and Herschel programs. Depending on table allocation, RCA members will be displaying programs such as observing the Moon, Planets, Asteroids and more. Find out about our Telescope Library where members can check out a variety of telescopes to try out. Find out about the observing site committee and special interest groups. Special interest groups, depending on participation, include Cosmology/Astrophysics, Astrophotography and Amateur Telescope Making.

Above all get to know people who share your interests.

The fair begins at 7:00 PM, Monday January 17th in the OMSI Auditorium. There will be a short business meeting at 7:30, . Enter at the Planetarium Entrance right (north) of the Main Entrance. Proceed to your right to the Auditorium.

Deadline for submission of articles, ads, and photos for the Gazette is the 20th of each month.

Last Quarter Moon	New Moon	First Quarter Moon	Full Moon
January 3, 9:47 AM. PST	January 10, 4:03 AM PST	January 16, 10:57 PM. PST	January 25, 2:33 AM. PST

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RCA

MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is reduced rate subscriptions to Sky & Telescope and Astronomy magazines. Sky & Telescope Magazine is $32.95 for one year. Astronomy magazine is $29 for one year or $55 for two years. For more information go to larry's web page:

larrygodsey.home.att.net/magazines

Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings.

Please Note: Allow two months for your subscription to be renewed.

Sky & Telescope Store Discount

RCA members who subscribe to *Sky & Telescope* are entitled to a 10% discount at the *Sky & Telescope* online store at: *http://skyandtelescope.com/shopsky*
To get your discount, enter Rose City Astronomers when prompted for your club name during checkout at the *Sky & Telescope* online store.

President's Message

By Carol Huston
January 2005

Welcome to Rose City Astronomers for 2005. As I look back over the years, I have seen major changes to our organization occur. When I joined RCA in 1989, there were less than 50 members. It was an informal group, all very enthusiastic to share their hobby of astronomy with newcomers and show them the wonders of the night sky. Since then, I have seen the club grow to 400+ member families, one of the largest in the United States. What hasn't changed is that basic enthusiasm and the willingness to share that knowledge. Even though the club is daunting in its size, the friendliness and informality of its membership is what makes this club so successful.

I remember only too well, when I came on the scene, how confusing everything was to me. I knew I wanted a telescope, but what kind amongst all of the choices? I also knew that I was interested in astronomy as a whole, but how would that play out in pursuing it as a hobby? Many members at that time took me under their wings and showed me the ropes, let me view through their scopes, showed me how to read star charts, and oriented me to the constellations. I found my niche through their guidance, and I learned a lot of the things that were a confusion to me before.

As I became more active in the club, I could see more "newbies" coming in with this same confusion, and I could recognize it all too well. I wanted to give back to this organization, and I found my calling in new member information. This led to the creation of the welcome packet, the new member packet, new member orientations, and new member information. Over the years, I gravitated through a number of the officer positions on the board: Secretary, VP of Star Parties, VP of Membership, New Member Advisor, and now President. The current RCA board consists of 20+ volunteers who all have stories such as this, and each position fulfills a role that provides a service to the membership of this club.

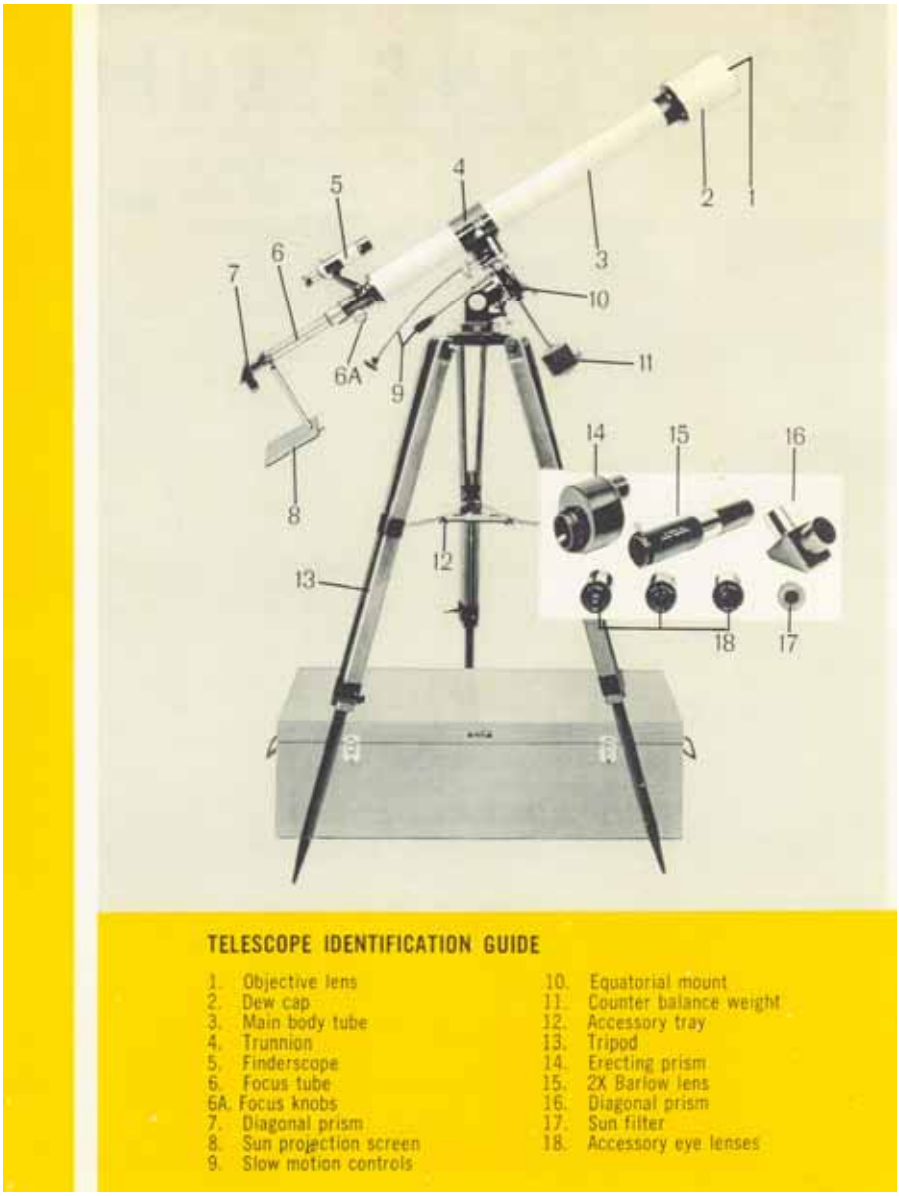
RCA's bylaws spell out our purpose: ***RCA is a non-profit, volunteer organization dedicated to promoting the enjoyment and education of astronomy and related subjects to members and the general public.*** As I look back over the years, I can see that the purpose of our bylaws has been fulfilled for me, members supporting other members, and I look forward to this organization carrying on the same direction.

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 4

By John W. Siple

A Tasco best seller, the cleverly-designed Model #10TE (or #10T) SOLARAMA REFRACTOR (REG NO. 510600, D=76.2mm. F=1200mm., 60X, 96X, 120X, 192X, 300X, 600X) began appearing at the close of the 1950's. Manufactured by the Japanese optical giant firm Astro Optical Industries, it was distributed worldwide by Tasco Sales, Inc. (1075 N.W. 71st Street, P.O. Box 878, Miami, FL 33138) as an ultra-precision refractor. Both my 1960 brochure or flyer and 1970 catalog have the telescope priced at $299.95. The 3" f/15.7 refractor could be purchased from a host of sources such as the large retailer Montgomery Ward ($199.99 in their 1967-70 catalogs as stock #67 (A-C) 7283 A--the cost jumped to $269.99 by 1973), as a special order from OMSI, and even Cave Optical Co. of Long Beach, CA carried it (in Cave's 1967/68 price sheet at $199.95). In Sydney, Australia the telescope was available from Amateur Astronomers Supply Co. as Royal Astronomical Telescope Model No. R-74, where the price tag was $199.00 as shown in their September, 1969 catalog. Because of inflationary pressures the price rose steadily in the 1970's, and by 1978 the #10TE had all but disappeared from dealer's inventories. It was replaced or supplanted shortly thereafter by Tasco's Model #10K ("a modernized cheaper-upgrade"), which is reminiscent of Orion's Sky Explorer II 80mm. f/15 equatorial refractor. Interestingly, Sears, Roebuck, & Co. started carrying a clone of the #10K (Sears catalog number 3 H 4454C, priced at $429.99 in their Fall/Winter 1978 issue) at about the same time. Displayed below is the parts diagram for the #10TE SOLARAMA, taken from page 20 of the Tasco 1964 catalog.

(Continued on Page 4)



©1964 Tasco Sales, Inc. Reprinted with permission from Bushnell.

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 4

(continued from page 3)

The vintage Tasco #10TE is characterized by an unusual mounting head design, similar in construction to the common Sears 3" f/16 Discoverer. The mounting is equipped with a latitude scale, hour and declination circles, spirit level, slow-motion flexible controls, and is supported by a rigid adjustable (33-60") mahogany tripod with a metal accessory shelf. The deluxe rack-and-pinion focuser has lots of travel, and is a marvel of craftsmanship. The telescope is supplied with three interchangeable 0.965" oculars (SR 4mm., HM 12.5mm., and H20mm.), a 2X Barlow lens for doubling of powers, a 90° star diagonal, an erecting prism for daytime viewing, a solar projection set, and a fine hardwood case with handles for storage and transport to and from the observing site. The hard-coated air-spaced Fraunhofer objective is held in a Hastings-style lens cell (three pairs of push-pull screws spaced 120° apart for precise "squaring-on" of the objective lens). The white metal optical tube outside diameter (O.D.) is a constant 3.00", which seems to be a Japanese standard (except Unitron, which used oversized tubes) for that time period. Therefore it is possible to remount odd Tasco #10TE tube assemblies on a variety of other Japanese-made 3" equatorial mountings. They also make superb guide refractors for astrophotography. There were some slight variations in the telescope design, such as the presence or absence of a third 360° azimuth setting circle, two 6X30mm. finderscope styles (one with a black dew-cap, the other white), and a rare version with an extra black telescoping-tube (fully retractable) on the focuser end.

A synchronous electric RA motor drive for "effortless, automatic star tracking", Part #1602F, was available optionally from Tasco for $49.95. The amateur astronomer could purchase the Model #15TE PLANETARY REFRACTOR (#10TE SOLARAMA with the drive already installed--my 1964 and 1970 catalogs list it at $299.95 and $349.95, respectively). It was available at a discount for $249.98 in Ward's Fall/Winter 1970 catalog as #67 B 7288 A. Cave Optical Co. offered the scope for $239.00 in 1967/68. Specifics for the #15TE can be found on page 179 of the March, 1969 and on page 352 of the November, 1969 issues of Sky & Telescope magazine.

From the author's collection. All rights reserved.

Identification markings appear on the wooden storage case's metal label (telescope title, powers, point of origin [MADE IN JAPAN], and occasionally a registration number). More detailed information is to be found on the focuser's small metal sticker or plaque. This engraving indicates in millimeters the diameter of the objective lens and the focal length, plus a serial number is indexed by the factory and/or Tasco Sales, Inc.

A significant percentage of instruments have exceptional levels of contrast and definition (and resolving power to the theoretical limit, 1.5 seconds of arc) resulting in a jet black sky background and pinpoint stars, a bonus for double star hunters. The objective has chromatic aberration characteristic of a 3" f/16 achromatic refractor; there is noticeable blue color fringing around Vega, and the gas giant Jupiter is surrounded by a minor halo of false color.

Tasco's Model #10TE SOLARAMA REFRACTOR. Set up and ready for action Current secondary market value $250-400, but some rare models are bringing $600.

Tasco's Model #15TE PLANETARY.

(Continued on Page 5)

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 4

(continued from page 4)

Gamma-2 Andromedae, the greenish-blue companion star in the famous Almach system, consists of magnitude 5.5 and 6.3 suns with a period of 61 years. B-C has a separation that varies from 0.1-0.55 seconds of arc, and during its greatest

orbital separation as seen from Earth the star shows definite elongation in the #10TE, a rare feat for any 3" refractor telescope. Other double stars such as the colorful Iota Cancri (magnitudes 4.2 & 6.6 with a separation of 30"), Gamma Virginis (mags. 3.5 & 3.5, sep. 1.8"), and Zeta Aquarii (mags. 4.4 & 4.5, sep. 2") are treats for the amateur astronomer! The pretty triple star Mu Bootis (mags. 4.3, 7.0, & 7.6, sep. 108", 2") is worth an extended look. On deep-sky objects the Tasco proves itself a real wizard! The galactic star cluster M48 in Hydra (one of Messier's "Missing Objects"—later identified as NGC 2548 from Owen Gingerich's research) is a "must see" through this telescope, and the extremely high contrast level on many units brings out hidden detail in planetary and gaseous nebulae. These ubiquitous vintage refractors (now classified as "collectibles") are a pleasure to use, have fast set up times, are portable and durable, and make great investments!

RCA Photo Gallery

Photos of the total lunar eclipse. I used my 8 inch Dob with a Nikon 995 digital.
…Bruce Alber, Vancouver, WA

M-81 taken with an Astro-physics 130 F6 scope and an SBIG ST10XE ccd camera.
...Terry Johnson

This is a photo of my grandson last Christmas with his Orion Starblaster Santa (grandma) brought him. He was 2 this last March and he loves the moon and stars. His mother has painted his room like a planetarium. The stars and planets shine at night and his light fixture is the sun with planets that actually move in orbit around it. Lucky little boy. A budding Carl Sagan?
...Betty Coleman

BOARD MEETING MINUTES

December 6, 2004
OMSI Classroom 1
Ken Cone

Present: Peter Abrahams, Ken Cone, Dale Fenske, Carol Huston, Jan Keiski, Greg Rohde, Deborah Smith-Hirshmann, Matt Vartanian, Jeff Sponaugle, Ken Hose, Patton Echols, Larry Godsey, Jim Reilly, Sameer Ruiwale, Margaret McCrea, Ginny Pitts, Matt Brewster

Treasurer – Ginny: (almost) $13,000 in our accounts.

Programming – Matt B: December holiday social will feature several new activities this year; should be FUN. January scheduled for the annual information faire. Upcoming speakers John Cramer on cosmology, Eric Agol on Milky Way galactic center black hole.

Membership – Ken H: 276 paid up member families

Star Parties –Matt V: Presented a draft schedule for 2005. There are still 2-3 undecided events out of 21. Messier Marathon in March could be held at either Hancock or Kah-Nee-Ta. Matt V will work with Matt B to finalize MM details. Watch for announcements. Great list for this early in the season!

Community Affairs Jeff S: nominal

Sales – Sameer: $281 in November sales. Looking into bar code scanner for sales table. The sales table sells all items at varying discounts depending on the item.

New Members – Jim: New Member and Constellation Orientation classes will be held early in the new year. Watch for announces in The Gazette.

International Dark Sky Association – Bob: nominal

AL – Dale: updated and paid AL memberships for all members.

SIGs – Margaret: nominal

Magazines – Larry G: nominal

Editor – Larry D: nominal

Library – Jan: nominal

YRCA – Jenny: nominal

Webmaster – Dareth: nominal

OMSI – Peter: nominal

Telescope Library – Greg Rohde: nominal

Copying – Deborah: All printed and raw materials in library storage area. Need member to step forward to fill this vacant position.

Phone line: - Jeff Sponaugle

Observing Site committee: nominal

SPECIAL NOTES:

Ginny moves and Jeff seconds motion that Sameer spend $40 on a bar code gun. Motion carried.

Margaret resigned as Magazine subscription director.

Jan moves and Greg seconds motion that Larry Godsey be nominated as subscription director. Motion carried.

Matt B resigned as SIG director.

Jan moves and Carol seconds motion that Margaret McCrae be the SIG director. Motion carried.

Several board members met after the board meeting to begin developing guidelines for reporting monetary transactions in various RCA functional areas. Once guidelines are developed, they will be presented to the board for approval and implementation.

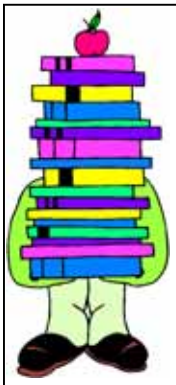
New elected Board Members for 2005:

- Carol Huston – President
- Ken Hose – VP of Membership
- Jeff Sponaugle – VP of Community Affairs
- Matt Brewster – VP of Programming
- Matt Vartanian – VP of Observing
- Ginny Pitts – Treasurer
- Ken Cone – Secretary

New appointed Board Members for 2005:

- Jim Reilly – New Member Advisor
- Margaret McCrea - SIG Director
- Larry Godsey - Subscription Director

New officers assume their roles January 1, 2005.



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CD-ROMs 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,

Jan Keiski (jikeiski@comcast.net)
503-539-4566

Visit the RCA library web page at:
http://www.rca-omsi.org/library.htm

THE OBSERVER'S CORNER Howard Banich

Cold, freezing dew, frost and snow.

Oh man, who would voluntarily go out in these conditions to have fun? At night when it's coldest? Those of us in the Pacific Northwest have very few clear nights during a typical winter so we generally don't worry about it much, but every so often a clear night comes along in January and February and we suddenly have a choice – stay inside and stay warm but cringe at the thought of passing by a beautiful clear sky chock full of stuff we haven't seen, or go outside and observe.

I've advised friends and relatives who are thinking about joining me for winter observing to dress as if they were going ice fishing. The mental image of sitting still for hours at a time on a frozen lake seems to get the point across, and after some 30 plus years of doing this only Judy has taken me up on it, and once was enough for her. Heck, most people get cold observing in the summer, so winter can be brutal if you're not truly prepared.

If you decide to go out and observe when it's really cold you'll have to be ready, so here's three lists and one important observing tip that can help.

What you'll need to stay warm:

Layers of warm clothes. I've found that three layers on my legs and torso work well down to about 15 degrees F. I make each successive layer thicker than the last, so the thickest layer is the final layer. Depending on how much I'm moving around, I may even take off a layer to stay comfortable. Make sure all the layers fit you somewhat loosely, as it's the air space between them that keeps you the warmest. Plus you'll be able to move around more easily.

Stay away from cotton, especially as a first layer because it will hold moisture right next to your skin making you feel colder than if you were dry. Polypropylene is best near the skin because it pulls moisture away, and it's comfortable.

A well insulated outer layer. Approaching 15 degrees F I usually need to put on an additional outer layer (layer number 4) to stay comfortably warm. I've found that an insulated cover all keeps in the heat. I've used this type of gear all the way down to –20F. They're are expensive, but you'll be happy you got one the first time you wear it. http://www.bkkenterprises.com/proddetail.asp?prod=COVR%5FWK

A warm hat. There isn't a hat that's too warm when it's really cold and it must be able to cover your ears – very important. A good rule of thumb is that the more you look like you're from Siberia the warmer you'll be. When the temp starts creeping below 10 degrees F, a face mask will help keep your nose warm, but it can be problematic because it makes fogging your eyepieces a lot easier. I'm still looking for the perfect hat so let me know if you have a suggestion.

Scarf. An underrated piece of clothing in my opinion. Although 80% of your body heat supposedly escapes through your head, my guess is that most of the remaining 20% escapes off the back of you neck. A good scarf not only compliments a good hat, but can also be a positive fashion statement. Face it, we all look a bit goofy with all this cold weather gear, so a flashy scarf will at least help your self image a bit. And thank goodness it's dark outside.

Gloves and glove liners. Most folks have a good pair of gloves, but glove liners are handy too, pun intended. These are thin gloves that aren't meant to keep your hands super warm, but work well for few minutes when thicker gloves are too bulky, like when changing eyepieces.

Hand warmers. These are the small packets that produce heat for about 8 hours after taking them out of their wrappers. Put one in each pocket, or inside your gloves or boots. Be careful to not leave them directly on your skin for too long as they can leave a burn.

http://www.warmhandsnow.com/store/warmers.shtml#handwarm

Thick wool socks. Basic cold weather gear, two pairs are better than one if your boots are roomy enough.

Insulated boots. Cold feet are the worst, and good warm boots like Sorrels are expensive. Think of them as necessary as an dew-free eyepiece for enjoying cold weather observing, and you may find that you'll use them all year around. Warm feet are an effective way to stay warm all over.

http://www.rei.com/online/store/Search?topStyles=699197%2C698992%2C699214%2C698082%2C700067%2C698990&noalias=1&originalTextQuery=sorrel&brand=Sorel&stat=7889&to

Thermos filled with a warm beverage or soup. Tasty and warm on the inside helps everything else feel toasty.

Snacks that don't freeze quickly and become too hard to eat. Trying to bite and chew a frozen snack can make you feel even colder and perhaps chip a tooth. But just about everything edible will freeze, so keep your snacks in the car or house until your ready to eat.

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The Observer's Corner *(Continued from page 7)*

What your scope will need to stay in operation:

Dew heaters for diagonal mirrors, corrector plates, objective lenses, finders and Telrads. Keeping dew or frost from forming and freezing on optical surfaces is your number one equipment goal. Once this happens you'll be fighting an uphill battle the rest of the night. There are commercial products available but you can also make your own. There's a lot to know about this subject, so research online and read the ads in Sky & Telescope and Astronomy magazines.

Kendrick: http://www.kendrick-ai.com/astro/dewremover.html#PremierController

AstroSystems: http://www.astrosystems.biz/dewgrd.htm

Orion Telescope and Binocular: http://www.telescope.com/jump.jsp?itemID=0&itemType=HOME_PAGE

Low tech eyepiece and finder scope/Telrad warmers. Taping a hand warmer to the bottom side of your finder or Telrad will keep these dew and frost free almost all night. If you also cover them with an extra wool cap when you're not looking through them they'll stay clear all night.

Small hair dryer to defrost all the above in case the dew heaters become overwhelmed. These little 12 volt gems will heat up an optical surface enough to dry off a light coating of dew or frost, but once you get to the point of having to use a hair dryer you'll be using it for the rest of the evening every 15 to 20 minutes. Check Orion Telescopes and Binoculars web site at: http://www.telescope.com/shopping/product/detailmain.jsp?itemID=90&itemType=PRODUCT&RS=1&keyword=dew

Other tips

Put the lens cap over the active eyepiece lens when you're not looking through it. This will keep it dew free for much longer. An even more effective trick is to get an insulted cup warmer to put over the eyepiece, and put a small hand warmer inside.

Cover your star charts and notebook with a towel when you're not using them. This keeps the dew and frost off quite nicely.

Covering your chair with a towel when you're not sitting on it helps keep it dry and less slippery.

If you're going to take a break for awhile to warm up, throw a blanket over your scope. This will reduce frost build up, plus it helps the dew warmers do their job.

Take a short walk around the observing field, do some jumping jacks, whatever, to keep your energy high and blood circulating. Stop short of working up a sweat; that will make you colder than before.

If you're observing away from home, start your car about 30 minutes before you're going to start driving so all the windows are defrosted. If frost is really thick, make sure you have a scraper.

Tire chains for your car should be standard equipment during the winter anyway; you never know when you might finally need them.

A propane powered "tent heater" (check Fred Meyer's outdoor section), if set up under your table or in the back of your vehicle will quickly take the chill off and really warm up eyepieces that have gotten locked in the dew-defog cycle. Read the instructions, and make sure you get one with a built in igniter.

http://www.coleman.com/coleman/colemancom/detail.asp?product_id=5053A751&categoryid=3000

When the temperature is below 0F, be careful to not touch bare metal with bare skin because they could freeze together. Really, it almost happened to me once... If your eyepieces don't have rubber eye guards, don't use them when it's this cold or get some rubber eye guards for them.

A final cold weather observing tip:

While looking through an eyepiece, exhale through the side of your mouth furthest from the eyepiece. For example, if you observe with your left eye, exhale through the right side of your mouth. Why? Your warm breathe is much less likely to fog over the eyepiece if it's directed away. This takes some getting used to, but it's a useful tip for most of the year in western Oregon.

Astrobiology on Mount Hood

Hunting Extremophiles in the Devil's Kitchen

By Bob McGown

In the summer of 2004, Tom Bennett of the Mazama Research Committee contacted me about helping two visiting scientists, Ruth Hennebuger and Dana Rogoff, with their project to search for kiemotropic sulfur-based life on Mt. Hood. Hydro-steam and sulfur percolating in the terminal moraine on Oregon's Mt. Hood Crater Rock produce hot fumarole vents at 90 degrees centigrade. These steaming sulfur fumaroles make up the Devil's Kitchen, a yellow pockmarked moraine in the Crater Rock area of Mt. Hood. This is a steep field of hot sulfur mud and steam vents, which may harbor bacteria in this extreme environment.

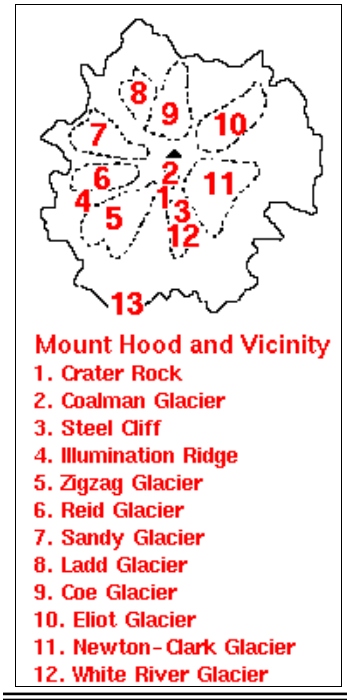
Ruth Hennebuger, a Ph.D. student from Macquarie University in Sydney, Australia, chose this site to investigate extremophiles bacterial life that thrive in the boundary at the very hot and cold environments. Collaborating with her is a biologist, Dana Rogoff, from NASA Ames. She also works for the SETI Institute. These women scientists were up for the challenges of climbing Mt. Hood in August. Dana's boss asked her if she was up to doing some research that involved mountaineering, using an ice axe and crampons; being a rock-climber, she said, "Count me in!"

The search was underway on Mt. Hood to discover highly adapted microorganisms known as extremophiles that thrive within boiling geothermal geysers and deep inside rocks. Highly adapted biology allows them to actually flourish in these extreme conditions feeding on chemicals that would kill most organisms.

After they arrived in Oregon, Ruth and Dana trained for the climb during the week at Mt. Hood's slopes. Tom Bennett, Steve Boyer M.D., and myself volunteered to be research assistant/sherpas for the astrobiology mini-expedition. Our first attempt to reach the Devil's Kitchen ended when we found ourselves hiking up at 9500' in a fierce rain and snowstorm. To avoid being another Mt. Hood statistic, we backed off and headed back for another day.

Three days later with a 2:30 a.m. start, after an assist from the sno-cat up to 8,000 feet; we started hiking up the Palmer ski run to the Triangle Moraine. With only the focused beam of our headlamps, we headed up the discontinuous lateral moraines connected by snowfields. Rivulets of glacier milk saturated the ground on their way down the mountain slopes. As we ascended the mountain in starlight, the Orion Molecular Cloud rose over the White River glacier. Two and a half hours later, after hiking past Illumination Rock on the west, we crossed small sections of water- ice hiking in the darkness, crossing the icy crust with our crampons and ski poles.

Dawn on the mountain.



From this vantage point, we ascended the upper White River glacier to the talus slopes below Crater Rock. With the crampons, we crossed the 40-degree slope streaked with occasional patches of sulfur. With the Colman glacier ahead of us, we crossed the small ravine that flows to the White River. Ahead of us was the yellow-streaked moraine that is known as the Devil's Kitchen. In the Lahar mudflow, this streaming field of sulfur fumerals was mined with horses for the sulfur to be used in gunpowder. From this vantage point, we ascended the upper White River glacier to the talus slopes below Crater Rock .With crampons, we crossed the 40-degree slope streaked with occasional patches of sulfur.

At 6:30 a.m. we set up camp in the near-darkness of the shadow of Mt. Hood, at the notch of the moraine, close to the glacier melt moat at the bottom of the glacier. The air temperature was -4 to -7 degrees centigrade, with a natural draft following down the gully. In the morning dawn, before sunlight hit the summit of Crater Rock, the sampling began. Ryan, the Timberline guide required by the University, set up a relay to protect Ruth as she traversed the 37-degree slope of Devil's Kitchen -- approximately 80m x 60m. The added safety factor was a good idea since there were large voids under the surface of the Devil's kitchen. Tom set up anchors on fixed blocks along the ridge crest with Steve assisting, as he soloed around the fumeroles nearby. Tom collected the samples from Ruth in sample-bags while Steve kept Ruth's carpenter apron stocked with tubes. Dana took sterile swabs at each location and cultured dishes. I recorded the tube samples and also recorded the data logbook. During the course of the day she also logged the PAR UV levels.

(Continued on Page 10)

Astrobiology on Mount Hood *(Continued from Page 9)*

There was a considerable amount of data logged at each site. Typically, each sample location involved an hour of sampling investigation. There were a variety of instruments used to log data at the sites, which included:

- 2 laser IR thermometers
- 1 deep temperature probe
- 1 clorine detector and miscellaneous tools
- 1 pH meter (dry) and litmus strips
- 1 UV PAR (photosynthetic active radiation)
- Sterile sampling spoons, knives, saws, and spatulas

Each sample location included:

- pre-sample photograph
- sample photograph
- post-sample photograph
- air temperature
- surface temperature
- 3 sampling depths -- surface, 5cm, 10cm
- PH, 50% glicerol, DNA samples
- F.I.S.H. samples, backup sample

Devil's Kitchen and the Coalman Glacier.

For the next nine hours, Ruth and Dana were belayed as we soloed while investigating each site systematically. Only seldom did they need to rely on their rope belay. We investigated eight sites in the Devil's Kitchen/Colman glacier moraine complex, where the surface temperature was hot enough to melt the gloves off your hands!

Each site had unique characteristics, sometimes radically different from the other sites investigated. The surface textures ranged from a yellow sulfur around fumarole to a green or orange mineral in the crust. The fumarole vent openings ranged in size from 2 cm to 10 cm. One of the first interesting sites of the investigation was in the shape of a cave about 20 cm across with sulfur steam coming out. Dana was especially interested in this site since she was studying bacteria that were UV resistant. The vents, steaming sulfur, that lined cracks in the rocks, were of special interest.

Some steaming 2 cm vents at the west end of the moat below the Colman Glacier and the east wall at the Devil's Kitchen hydrothermal vents had the possibility of being some of the most extreme high and low temperature sites. This was what Ruth was looking for in her PhD investigation.

Toward the end of our adventure, Steve made a solo dash for the summit without the burden of a heavy rucksack. Using two ice tools, he weaved in and out of the crevasses on the Colman Glacier. After a long day of sampling, we could see that the lifts were already closed and the sun was low, so we packed up and headed down the mountains. Extending our ski poles to maximize length for the descent, we made our way down the snowfields between the talus fields. On the descent, the snow was firm and we enjoyed a standing glassade on our three and a half mile descent off the mountain. Steve skied ahead with samples in his pack packed in blue ice.

The team sampling on the slope of the Devil's Kitchen

Along our route, Dana sampled colored snow. The pink watermelon snow, lichen feeding off of aoleian nutrients was to be cultured later. We arrived back in the lodge at 5:30 p.m. with fieldwork completed. Later, Ruth and Dana planned to work in the OHSU lab, isolating the extreme forms of bacteria. The samples were then packed in dry ice for the long flight home. Ruth and her team in Australia still had a challenge to complete the DNA sequence of these life forms.

On the drive back to Portland, Tom and I discussed the project in the larger context of the hunt for extreme limits of life both on Earth and other planets such as Mars. What are the parameters of where life can exist on the surface and under the surface of a planet? On Earth, we can map the where those boundary conditions where life exists and then we can search in those areas on Mars. The habitable zone, which has existed for 4.5 billion years on the Earth's surface, may have only existed on the surface of the red planet for less than a billion years. The evolutionary path of microorganisms on Earth and Mars may be radically different or show the same patterns. And although the "habitable" zone" is much different on Earth than on Mars now, we can learn a great deal about extreme forms of life on these planets that may also exist on extrasolar planets. On Mars, the habitable zone may have lasted periodically for less than 1 billion years. *(Continued on Page 11)*

Astrobiology on Mount Hood *(Continued from page 10)*

Because of my deep interest in the science of astrobiology, as well as my climbing experience (Mazamas & American Alpine Club) I felt very fortunate to have been a part of this expedition to hunt for extremophiles on Mt. Hood. It was a combination of science and climbing! Also as a member of Oregon Team SETI, it was a particular pleasure to meet Dana and Ruth and discuss common interests. I look forward to hearing about the results of the lab research of the samples we collected. If there were ever-another visit to other mountain environments to search for extremophiles, I would be honored to be one of the team.

Rose City Astronomers 'Downtowner's' Lunch

Join us on the first Friday of each month for lunch at the Great China Seafood restaurant (Holidays and such may push us to the second Friday of some months, check the calendar at http://www.rca-omsi.org).
Cost is $6.50 for all-you-can-eat Chinese Buffet Lunch.
Great China Seafood restaurant
334 N.W. Davis, Upstairs on the 2nd floor
Great conversation and buffet lunch.
For more information contact: Margaret McCrea at mmcrea@nwlink.com

Comic provided free of charge by www.astronerds.com.

Telescope Workshop

Date/Time: Saturday, January 22, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

Contact: John DeLacy <johncdelacy@comcast.net> for more information

ASTROPHYSICS / COSMOLOGY SIG

Date/Time: Thursday, January 20, 7 PM.
Speaker/Topic: Vince Corbin "The Physics of Quantum Entanglement & Non-Locality"
Place: Linus Pauling Complex, 3945 S.E. Hawthorne St., Portland.
Contact: Bob McGown (503-244-0078)
or Dareth Murray, (503-957-4499) for more information.

We are looking for speakers to lead a discussion. What is your favorite topic in Astrophysics or Cosmology? Let's talk about it! Call Bob at 503-244-0078 or email him: bobmcgown@comcast.net

2005 Desert Sunset Star Party

Pat and Arleen Heimann will again be hosting the Desert Sunset Star Party May 4-8, 2005, at the Caballo Loco RV Ranch southwest of Tucson. Caballo Loco is located east of Kitt Peak and nestled against the Sierrita Mountains. Whipple Observatory on Mt Hopkins is located to the east. Lots to do during the day and great skies at night. There will be speakers and door prizes on Friday and Saturday evenings. Check our website for details: http://www.chartmarker.com/sunset.htm

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

January 2005

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					

January 2005

Jan 10	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
Jan 17	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Jan 20	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm
Jan 22	Sat	Telescope Workshop	Swan Island	10am—3pm

February 2005

Feb 7	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
Feb 21	Mon	RCA General Meeting	OMSI Auditorium	7:30pm

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 2 Newsletter of the Rose City Astronomers February, 2005

In This Issue:

Hubble Deep Field above courtesy R. Williams (STScI), the Hubble Deep Field Team and NASA.

Moon photos below courtesy David Haworth

"The Black Hole at the Center of the Milky Way"

Presented by Eric Agol
Assistant Professor, University of Washington

The very center of our home galaxy in the constellation Sagittarius houses one of the strangest beasts in the astronomical menagerie, known to astronomers as "Sagittarius A*." With recent advances in telescope technology, astronomers can now see the complete revolutions of stars about this object, and from these orbits compute that it weighs as much as four million suns. Coincident with this point is a source of radiation from the radio to gamma-rays which comes from gas so hot that it needs a heat source as exotic as a black hole. This has presented astronomers with many puzzles. It is much fainter than would have been concluded from the "fuel" fed in from winds of stars surrounding it. Many stars near it are very young, raising the question of how can stars form in such a hostile environment. And the mass of the black hole, when compared with black holes in other galaxies, seems to be strongly correlated with the mass of stars on a scale thousands of times larger. I will review the recent progress in studying this behemoth, and discuss future prospects for "seeing" this black hole directly (or rather its shadow).

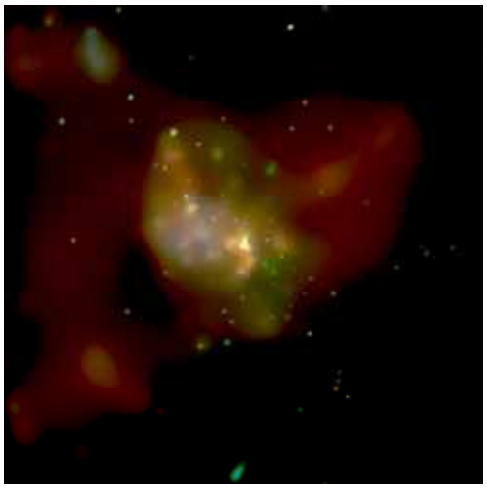


Photo Above: Chandra False Color Image of Sagittarius A..
Courtesy: NASA/MIT/F.Baganoff et al.

Everyone is Welcome!
Monday February 21
Social Gathering: 7 pm.
Meeting Begins: 7:30 pm.
Location: OMSI Auditorium

Deadline for submission of articles, ads, and photos for the Gazette is the 20th of each month.

Last Quarter Moon	New Moon	First Quarter Moon	Full Moon
February 1, 11:28 PM. PST	February 8, 2:30 PM PST	February 15, 4:15 PM. PST	February 23, 8:55 PM. PST

Club Officers			
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Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.org

RCA

MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is reduced rate subscriptions to Sky & Telescope and Astronomy magazines. Sky & Telescope Magazine is $32.95 for one year. Astronomy magazine is $29 for one year or $55 for two years. For more information go to larry's web page:

larrygodsey.home.att.net/magazines

Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings.

Please Note: Allow two months for your subscription to be renewed.

Sky & Telescope Store Discount

RCA members who subscribe to *Sky & Telescope* are entitled to a 10% discount at the *Sky & Telescope* online store at: *http://skyandtelescope.com/shopsky* To get your discount, enter Rose City Astronomers when prompted for your club name during checkout at the *Sky & Telescope* online store.

President's Message

By Carol Huston
February 2005

February is a gray time of year. If we get any very clear days, they are sure to be accompanied by really cold weather. While it is great if you get a clear night to get your scope out, winter observing has its own set of challenges.

Observing in cold weather can be very rewarding, but you need to be totally prepared. Of course, it is important to wear layers of clothing, including warm socks, warm gloves, and insulated shoes or boots. Skier type clothing is good with the different layers of insulation and polypropolene long undies, t-neck shirts, and socks. For the outer layer, I have found that coats made out of micro-fiber are warmer than nylon or Gortex type fabrics. Don't forget to use a neck warmer or scarf.

I bought some cheap polar fleece gloves and cut off the underneath part of the tips of the index finger and middle finger, so just the pads of those two fingers are exposed. When it is real cold, I put on a pair of leather lined driving gloves underneath the polar fleece gloves and still get traction from my fingertips.

Hand warmers are great to keep you warm – in your pockets, in your gloves, in your leggings. But, they can also be used with your eyepieces or Telrad to keep them from dewing over as well. Another trick to keep you just a little bit warmer is to put a towel or some thick fabric on your observing stool so there is one more layer of insulation between your body and a hard surface.

Don't underestimate the warming capabilities of a cup of hot cocoa or hot soup in the middle of an observing session. And, my last tip for cold-weather observing: don't ever drop a white Telrad screw in the snow. You will NEVER find it with your red flashlight.

THE OBSERVER'S CORNER *Howard Banich*

Some Winter Sky Favorites

This month I'm presenting a few of my favorite winter sky objects with the experimental addition of internet hyperlinks to more information and images. Although hyperlinks are a potential source of frustration if you're reading this in the hard copy version of the newsletter, I've tried to make this article stand alone without them. Let me know what you think.

Saturn

By far my favorite object in the 2005 winter sky is Saturn. Although a temporary resident of Gemini, its current location is perfect for extended viewing, plus you only need to look from your back yard for a pleasing view. Saturn is about a month past opposition so it's still essentially as close as it was last month. The ring plane is tilted dramatically towards us so when the seeing settles down the view can be breathtaking. Even more exciting is to realize that Saturn and its moons are at this moment being actively explored by the Cassini-Huygens mission. As is true for any type of observing, the more you know about an object the more thought provoking your observing will be. These web sites have the latest info and images:

JPL / NASA Cassini-Huygens page:
http://saturn.jpl.nasa.gov/home/

ESA Cassini-Huygens page:
http://www.esa.int/SPECIALS/Cassini-Huygens/index.html

When the seeing settles down there are some subtle but lovely features to look for. Start by trying to see the Crepe Ring, also known as the C ring. It is a gossamer ring just inside the broad and bright B ring system, which very often appears to be the innermost ring. The C ring is barely brighter than the sky background and is often difficult to see because of the brightness of Saturn's globe and the B ring, but if conditions are right you'll see it most clearly just inside the inner cusps of the B ring.

The Cassini Division will be the most obvious dark gap in the rings, separating the B ring from the outmost A ring. Note the subtle color difference between these ring systems – the B ring is more nearly white as compared to the grayer looking A ring. If the seeing is very steady and you can get a truly sharp image with magnifications of at least 400x, try looking for the Encke Division. This is very thin gap in the A ring, and is located about ¾ of the way from the Cassini Division to the outer edge of the A ring. Even in the very best conditions the Encke Division won't jump out at you so you'll need to look carefully.

The cloud bands on Saturn's globe are much more subtle than those on Jupiter, but with careful observation you'll be able to notice several bands where at first there may have appeared to be none. Look especially for the polar "cap", what color do you see it as? Most times it looks like a dark gray-ish-green to me.

Titan

And then there are the moons. Titan has been in the news, and spectacularly so. It would seem that the speculation that Titan would have liquid methane and ethane on its surface is really true – how cool is that! But through a telescope it will at most appear to be a small slightly orange star that may under very high power show a tiny disc. When conditions are steady enough to see Titan as a disc then the time is ripe to look for the Encke Division in the A ring as well. And visa versa. But back to Titan; imagine methane rain, rivers and lakes in a smoggy atmosphere 1.5 times as thick as our own, and super cold at –290F. It seems the very definition of an alien planet, and it's only about 860 million miles away.

M1, the Crab Nebula

6000 light years away is M1, the first entry in Charles Messier's catalog of comet-like objects, and which to my eye is one of the more comet-like looking deep sky objects. Also known as the Crab Nebula because of the numerous scraggly filaments that are prominent in photographs, it generally fails to look crab-like visually. Here again, knowledge of what this rather small and faint smudge of fuzzy light actually is can make this an exciting sight. It's the remnant of a supernova, a massive star that blew itself to smithereens only about a thousand years ago. The explosion left behind a rapidly spinning neutron star that energizes the expanding debris cloud by synchrotron radiation, and you can even see, barely, the neutron star with a 12" or larger scope. How cool is that!

(Continued on page 5)

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 5

By John W. Siple

The 1950's era "HY-SCORE" 60mm. f/20 equatorial refractor by GOTO OPTICAL MFG. CO. of Tokyo, Japan is ruggedly built (GOTO, established in 1926, is now a world leader in planetarium technology). A distributor of these excellent refractors was S.E. Laszlo, 25 Lafayette St., Brooklyn, NY. The telescope has characteristic GOTO OPTICAL styling highlighted by an equatorial mounting that is "solid as a rock" and a tube assembly possessing many unique features. A carefully machined non-adjustable cell holds the achromatic objective lens, and the focuser rotates 360° for best optical orientation. The OTA is attached to the mounting by an ingenious "sliding locking-rod mechanism," and the finderscope is a functional but small 6X17mm. A wooden cabinet holds the instrument while in storage. An extra-long focal length of 1200mm. translates into nary a trace of false color around virtually any object; Jupiter exhibits a contrasty disk and the limb of the planet juts against a black sky background. Gamma Delphini, consisting of a beautiful pair of golden yellow and pale bluish-green stars (mags. 4.5 & 5.5, sep. 10"), is often gazed upon with this superlative refractor.

GOTO OPTICAL 60mm. f/20 "HY-SCORE" refractor—current secondary market value $350-400. The 60mm. f/15 alt-azimuth versions bring $150-275. GOTO-KOGAKU eyepieces such as the dual H10-20mm. are worth $30-40 each.

Coulter 13.1" f/4.5 Odyssey 1 "blue" with extra Cave Optical Co. 50mm. finder--current secondary market value $550-725.

Coulter's "blue" 13.1" f/4.5 Odyssey 1 Dobsonian-style reflector (May, 1980-1987), the first mass-produced affordable large aperture "light-bucket," caused a paradigm shift in the minds of many amateur astronomers. Manufactured by Coulter Optical Company, P.O. Box K, Idyllwild, CA 92349 (the company name is derived from the Coulter Pine Tree, a conifer that grows from 3000-7000 ft. elevation in Southern California and habitually produces giant pine cones), this great scope initially sold for $395 (plus $75 crating). It was later structurally reconfigured to become lighter and therefore more portable, and to remove some inherent weaknesses (now offered as Coulter's "red" Dob).

A Sonotube, or cardboard form for pouring concrete, is used as its main optical tube (finished in an attractive blue Zolatone sealer). The 13.1" primary and 3.1" m.a. secondary mirrors are made of pyrex, not inferior soda-lime glass. The figuring is adequate for most visual applications, with a surface accuracy of 1/8th wave. A caveat is the design of the mirror cell, as the mirror must be removed after each observing session. A "trap-door" or tailgate is located at the bottom of the Sonotube, and the mirror is fitted through it when ready to use (a good reason to redesign this behemoth). In contrast to the newer red types, these older Coulter scopes have a fine rack-and-pinion focuser. The eyepiece is a coated 1.25" 25mm. Kellner. The 13.1" is a heavy instrument, as the baseboards and tube-box are made exclusively of wood products. The total weight in its observing position is 120 lbs., with dimensions of 60" X 22" X 22". Altitude and azimuth motions are smooth, since the metal side-bearings ride on Teflon.

The great light-gathering power of this telescope would satisfy the cravings of most amateur astronomers who want to look deeper into the cosmos. It has the capability to resolve compact globular star clusters such as M75 in Sagittarius or M80 in Scorpius, while the galaxy M61 in Virgo shows distinct spiral coils.

THE OBSERVER'S CORNER *(Continued from page 3)*

In a dark sky, try using an OIII filter on M1. The first time I tried this I was thrilled that the appearance of the nebula was now much more like its photographs. I've most often seen the overall shape of M1 as a fat, lazy "S", but with the OIII it was suddenly a complete egg-shaped oval. Most astonishingly, there were several prominent, scraggly lines crossing the body of the oval nebulosity – the "crab" filaments! I don't know what the minimum aperture would be to see these filaments, as I first saw them with a 20" scope. But they had so much contrast that I'm tempted to say that they could be glimpsed with a 10" scope. Give this a try regardless of the size of your scope, you never know.
http://nineplanets.org/twn/n1952x.html

M35 and NGC 2158

I really enjoy looking at these two beautiful open clusters. They seem to almost overlap but in reality are separated by approximately 8400 light years. M35 is about 2800 light years from us and is a relatively young open cluster. Its individual stars are easy to see and its identity as a cluster is obvious even through binoculars. 2158 is not only farther away it's also much older than M35, so this chance juxtaposition of these clusters gives an immediate sense of depth and age to the sky, and that's what I enjoy the most about the view. Sometimes it's easy to forget that we're looking into a multi-dimensional expanse, and a field of view that so conveniently lines up two very nice open clusters like this is not be missed. And besides, they're just plain gorgeous.
http://antwrp.gsfc.nasa.gov/apod/ap031215.html

The Orion Nebula, M42 / 43

The Orion Nebula complex is my favorite telescopic sight for any time of the year. It's large, bright, detailed, easy to find and is one of the few deep sky objects that will impress just about anyone when viewed in a dark sky, regardless of the scope used. Heck, it can be seen with unaided vision as the fuzzy star in Orion's sword, pretty impressive for an emission nebula 1500 light years away. The larger the scope and the darker the sky, the more detail and hints of color you'll be able to see. Even a small scope will show the electric turquoise color of the brightest areas, but a large scope is needed to show hints of red that are so easily seen in photographs.
http://nineplanets.org/twn/n1976x.html

Try any nebula filters you have or can borrow, you may find a filtered view even more impressive. Also note the distinctive shape of M42 while cruising through the field. I see a shape like a blossoming flower, the petals opening up to reveal the bright inner regions of the nebula. A binoviewer enhances this sensation, but a monocular view can do the job nearly as well.

In the middle of the action is the multiple star **Theta Orionis**, also known as the Trapezium. You'll likely see four bright stars grouped together in a tight trapezoid pattern, and careful observing at increasingly high powers will reveal fainter stars lurking nearby. The four main stars are labeled A through D, with the next two brightest, which are also the closest to the main stars, labeled E and F. There are more – G and H have been observed visually but you'll need a big scope and very steady skies.
http://www.astropix.com/HTML/B_WINTER/TRAPEZ.HTM

The whole area of M42 is sprinkled with stars, many of them quite bright and blue-ish white.

Aside from the obvious beauty of this enormous stellar nursery, soaking in the view of the main nebulae and the nearby NGC 1977 complex together at low power is something I'll always enjoy. There's nothing like it visible from the northern hemisphere. And knowing that M42 and 43 are merely the brightest portions of a much larger nebular complex that pervades Orion is a wonderful thought to keep in mind when observing any nebula in this area – stars are beginning their lives all through this part of the sky. Note how M42 and the **Horsehead Nebula** are seemingly related:
http://www.robgendlerastropics.com/Oriondeepfield.html

A clear view of winter night sky from western Oregon is a rare treat, especially from a dark sky site. Sure, it's likely to be 15F degrees outside on a clear night in February, but then this is the best time to get out and see this stuff for yourself. Read my article in last month's Rosette Gazette on how to make sure you and your scope are ready for winter conditions, and you may find that observing this time of year is more than worth the extra preparation.

BOARD MEETING MINUTES

January 10, 2005
OMSI Classroom 1
Ken Cone

President Carol Huston called the meeting to order and welcomed guests.

Board members present: Matt Brewster, Ken Cone, Patton Echols, Dale Fenske, Larry Godsey, Ken Hose, Carol Huston, Jan Keiski, Margaret McCrea, Dareth Murray, Jim Reilly, Greg Rohde, Sameer Ruiwale, Jeff Sponaugle, Matt Vartanian, Bob McGown

Guests, Ed Epp, David Nemo, Gene Dietzen

Board Reports:

- Secretary's Report – Ken Cone – Quorum (12) met with 14 voting members present.
- Treasurer's Report – Ed Epp for Ginny Pitts, cash in accounts $11,433. Larry and Ed will work with Ginny to reconcile the budget report amounts for magazines. Patton moves and Jim seconds that Ed Epp be appointed to the voting position of assistant treasurer, motion carried.
- VP Programming – Matt Brewster, Information fair is program for January RCA general meeting. Upcoming speakers, Eric ?? Feb, ?? Kramer in March, Don Brownlee Star dust project, April.
- VP Observing – Matt Vartanian, Kah-Nee-Ta in March 11-12, Hancock in April 8-9.
- VP Community Affairs – Jeff Sponaugle, several contacts from schools, Jeff will summarize. Members are encouraged to contact Jeff if your school or other group would like a star party. Email Jeff at: jsponaugle@kryptiq.com
- VP Membership – Ken Hose 2 new members, 2 renewals, total of 277 member families.
- New Member Advisor – Jim Reilly New members' class by end of February. Look for exact date announcement at January meeting.
- Sales – Sameer Ruiwale November $1551. December $344 in sales.
- Book Library – Jan Keiski ~$200 left to use for Jim Girard books.
- Telescope Library – Greg Rohde nominal. RCA has an issue with a former member who has a checked-out telescope from 1998. Member hasn't returned many phone calls. Greg will pursue.
- SIGs – Margaret McCrea Telescope making workshop and cosmology are only two SIGs to date.
- IDA – Bob McGown A letter that was posted to the RCA list from a member regarding signing a petition to send to President Bush on dark skies. It was not authorized by the IDA but when we contacted Bob Gent (on Board of IDA) he said it was ok to sign. It is actually sponsored by the Democratic Party! We were concerned that it was not really legitimate, but it is fine.
- Magazine Subscriptions – Larry Godsey $285.65 in magazine subscriptions.
- Gazette Editor – Larry Deal nominal
- Webmaster – Dareth Murray working on calendar and star party list for the web site.
- Alcor/Historian – Dale Fenske introduced a proposal from the Astronomical League requesting RCA's vote on a proposed change to the AL Bylaws. This statement would allow clubs to have only a percentage of their membership be AL members with a resulting graduated scale on the club's membership fees to AL. After much discussion, Sameer Ruiwale moved and Greg seconded that RCA vote in favor of the proposed AL bylaws change. The vote was 1 for, and 14 against approving this proposal. Dale will register RCA's "no" vote in our ballot to the AL.
- OMSI – Carol Huston met with Jim Todd and had several things to report. OMSI is doing well, and the Planetarium is doing very well. RCA's relationship with OMSI is a highly valued partnership and recognized as such in the museum world. RCA will partner with OMSI to put on eight star parties this year as part of our agreement with OMSI. Public star parties will continue to be in the East parking lot. OMSI is pursuing a Planetarium show available on light pollution.
- Other: JRCA, Copying, Misc. nominal

Old Business

- Review of open action items from past meetings. No old business.
- Phone Line Report
- Phone Duty

  Jan 4 through Feb 7: Larry

  Feb 8 through Mar 7: Patton

(Continued on page 7)

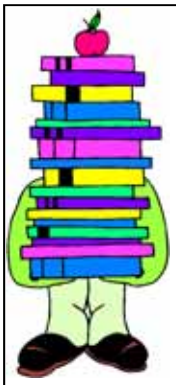
Board Meeting Minutes *(Continued from page 6)*

New Business:

- AL Report – Carol: Nominations for the National Young Astronomer Award are due by 1/15, and the Horkheimer Service Award for young astronomers due 3/31. Review criteria for each on AL web site and get any nominations to Carol for submittal. The annual AL meeting will be held in Kansas City on Aug 11 2005. AL has a new Globular Cluster observing program.
- Board will review direction and goals at February board meeting, along with the yearly calendar, by-laws, and legal status. Bring handouts from January meeting.
- David Nemo – reported on Observing Site Committee's Site Acquisition Plan. Carol proposed that board have month long email discussion about the proposal and vote at the March board meeting. See the RCA web site for a link to the plan. A recent member survey with 105 respondents revealed 87% favored securing multiple sites and 63% thought a nearby site should be the top single priority. A capital fundraising campaign will be necessary. Remote site most likely would be a purchase. Carol proposed an observing site directorship (voting) be added to the board. Dareth made a motion to set up and appoint David Nemo as the Observing Site Director. Patton seconded. Motion carried.

Action items:

- Carol will meet with Ed and Ginny to review the budget report format. Board members to e-mail their ideas to Ed.
- Jeff S will help with copying information for new members.
- Carol will get with Jim Todd to negotiate second week in December for holiday social 2005.
- Margaret will meet with Carol to discuss role of SIG VP.
- Patton to contact Jim Todd and Bob Duke of the Oregonian, and perhaps the Hillsboro Argus to promote RCA.
- Larry to contact Jim Todd re Hancock to organize a work party to help with getting telescope storage building and other projects completed.
- Carol will email phone instructions to the board.



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CD-ROMs 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,

Jan Keiski (jikeiski@comcast.net)
503-539-4566
Visit the RCA library web page at:
http://www.rca-omsi.org/library.htm

This photo of Mt. St. Helens was taken December 18th, 2004 by moonlight near the Coldwater Ridge visitor center at 11 p.m. Orion is partly seen above the crater.

Bruce Alber
Vancouver, WA

How Did the Universe Begin?

by Maurice Bruce Stewart

Image Credit: NASA, ESA, and The Hubble Heritage Team (AURA/STScI)

"The universe is about 12 billion years old." When people want to talk with one another about anything, they need to use shared concepts. "The supermarket is three years old." What about someone who does not understand what is meant by "supermarket"? By far the best thing to do would be to show that person a supermarket, but, failing that, you can tell a story describing what a supermarket is. What about the concept "three years old"? Here there is no possibility of showing, but you can certainly tell an intelligible story: Three years ago a bunch of men and women wearing special clothes and carrying special tools received materials from various deliveries and reshaped and refashioned them into a supermarket. Endless illuminating details can be added.

Now we turn our attention to the grammatically similar "The universe is about 12 billion years old." What we find is a nightmare of verbal booby traps. What about someone who does not understand what is meant by "universe"? Here, sadly, is no question of showing. You have to tell a story: The universe is everything; there is nothing that is not in the universe. Having told this story, perhaps somewhat embellished, you will soon discover that the idea "there is nothing that is not in the universe" is very controversial idea. There are lots of people willing to kill to support their conviction that there is a supremely important transcendent being who is not in the universe. All right, you say, what I call the universe is what you call the universe plus your transcendent being. This response will not mollify most theists. Another less emotional group believes that there are many universes and that we just happen to live in one of them. All right, you say, what you call a multiplicity of universes is a collection which I call "the" universe. All these difficulties about what constitutes the universe are just illustrations of the truth that the difficulties of starting *somewhere* cannot be overcome by starting *somewhere* else.

Setting aside the problem of deciding what "universe" means, we take a look at "12 billion years old". Again there is no possibility of showing, but there also seems to be no possibility of telling an intelligible story. Who are the men and women wearing special clothes? What kind of tools are they using? From whom are they taking the deliveries of materials? Where did the materials come from? An even deeper problem with any such story is that would raise extremely awkward questions about the location in both space and in time of this creative activity which must occur both outside of and prior to the universe. These difficulties about the beginning of the universe are just illustrations of the truth that the difficulties of starting at *some* time cannot be overcome by starting at *some* other time.

A straight-forward way of avoiding the difficulties of starting is to conceive of the universe as something which did not start, and, incidentally, will not end. How, you ask, is this idea of not starting to be squared with the idea that the universe is about 12 billions years old? Consider the numbers between zero and one, but not including either zero or one. This infinite collection of numbers has neither a first nor a last member. No matter how small a number, but greater than zero, you select, there are still an infinite number of even smaller numbers between your selection and zero. No matter how large a number you select, but less than one, there are still an infinite number of even larger numbers between your selection and one. If you imagine pairing off the events associated with the universe and the numbers greater than zero and less than one, you will see how there cannot be a first event or a last event.

So the answer to the question "How did the universe begin?" is "It didn't."

New Members Orientation Meeting

If you have joined our club recently, or have little experience with astronomy, you might be uncomfortable about seeking answers to any number or questions: what to buy, what to see, when and where to look, and other questions that reveal your inexperience. ***We have the perfect answer -*** a new-member orientation* will be held on Saturday, February 26th at the home of Jim Reilly, our club's New Member Advisor (yes, I'm both new member-advisor *and* new-member advisor!). We will spend a few hours that afternoon (starting at 2:30) talking about astronomy: I'll fill you in on my astro-experiences, including hazy memories of when I was a new member, and you can ask questions about our great hobby. I will not have every answer on the spot, but together we can figure out the next person to ask and we'll find the answers! If a whole lot of people contact me, I will set up a second class quickly – so even if the 26th isn't your best day to play, please contact me if you are interested.

Some of the topics we'll cover:

- Club resources and how to access them.
- How to prepare for and participate in star parties.
- Helpful tips on what you'll need to get started.
- Introduction to observing programs.
- Generic review of equipment.
- Volunteer opportunities with RCA
- Question and Answer

Please RSVP by contacting Jim Reilly (503-493-2386, or skynut@granitic.net) and mention how many of you are coming. Remember also to bring along your new-member packet for reference... I'll have a few spares, just in case.

This informal information session will be geared to helping you make the most out of your participation in RCA, so any advance questions and topics you want considered can also be passed along at the time of your RSVP.

** You don't have to be absolutely new! Slightly used members are also welcome.*

The Cocoon nebula.
Astro-Physics 130 F6 scope,
ST10XME CCD camera
Photo by Terry Johnson.

Stardust Up Close

by Patrick L. Barry and Dr. Tony Phillips

Like discarded lumber and broken bricks around a construction site, comets scattered at the edge of our solar system are left-over bits from the "construction" of our solar system.

Studying comets, then, can help scientists understand how our solar system formed, and how it gave rise to a life-bearing planet like Earth.

But comets have long been frustratingly out of reach -- until recently. In January 2004 NASA's Stardust probe made a fly-by of the comet Wild 2 (pronounced "vilt"). This fly-by captured some of the best images and data on comets yet ... and the most surprising.

Scientists had thought that comets were basically "rubble piles" of ice and dust -- leftover "construction materials" held together by the comet's feeble gravity. But that's not what Stardust found. Photos of Wild 2 reveal a bizarre landscape of odd-shaped craters, tall cliffs, and overhangs. The comet looks like an alien world in miniature, not construction debris. To support these shapes against the pull of gravity, the comet must have a different consistency than scientists thought:

"Now we think the comet's surface might have a texture like freeze-dried ice cream, so-called 'astronaut ice cream': It's solid and can assume odd, gravity-defying shapes, but it's basically soft and crumbles easily," says Donald Brownlee of the University of Washington, principal investigator for Stardust.

Scientists are currently assembling a 3-D computer model of this surface from the photos that Stardust took. Those photos show the sunlit side of the comet from many angles, so its 3-dimensional shape can be inferred by analyzing the images. The result will be a "virtual comet" that scientists can examine from any angle. They can even perform a virtual fly-by. Using this 3-D model to study the comet's shape in detail, the scientists will learn a lot about the material from which the comet is made: how strong or dense or brittle it is, for example.

Soon, the Stardust team will get their hands on some of that material. In January 2006, a capsule from Stardust will parachute down to Earth carrying samples of comet dust captured during the flyby. Once scientists get these tiny grains under their microscopes, they'll get their first glimpse at the primordial makings of the solar system.

It's heading our way: ancient, hard-won, possibly surprising and definitely precious dust from the construction zone.

Find out more about the Stardust mission at http://stardust.jpl.nasa.gov. Kids can read about comets, play the “Tails of Wonder” game about comets, and hear a rhyming story about aerogel at http://spaceplace.nasa.gov/en/kids/stardust/.

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

Right: The Stardust spacecraft used a grid holding aerogel to capture dust particles from comet Wild 2. In this test, high velocity dust particles are stopped unharmed at the end of cone shaped tracks in a sample of aerogel.

2005 RCA Observing Schedule

Star Party Site Location Information

Month	Date	Day	Event	Location
Mar	11 - 13	Fri-Sun	Messier Marathon	Kah Nee Ta
Mar	19	Sat	Vernal Equinox Celebration	OMSI East Parking Lot
Apr	8 - 10	Fri-Sun	RCA Dark Sky Star Party	Camp Hancock*
Apr	16	Sat	Astronomy Day	OMSI East Parking Lot
May	6 - 8	Fri-Sun	RCA Dark Sky Star Party	Camp Hancock*
May	14	Sat	Planet Parade	OMSI East Parking Lot
Jun	4	Sat	RCA Star Party	Larch Mountain
Jun	11	Sat	Summer Solstice Celebration	OMSI East Parking Lot
Jun	24 - 26	Fri-Sun	AARL Field Day - Ham Radio	Larch Mountain**
Jul	6 - 10	Wed-Sun	Mt. Bachelor Star Party	Mt. Bachelor, Bend*
Jul	9	Sat	RCA Star Party	White River Canyon
Jul	16	Sat	Lunar Viewing	OMSI East Parking Lot
Jul	30	Sat	RCA Star Party	White River Canyon
Aug	6	Sat	RCA Star Party	Trout Lake, WA*
Aug	4 - 7	Thu-Sun	Table Mountain Star Party	Ellensburg, WA*
Aug	11	Thu	Perseid Meteor Shower Watch	Rooster Rock St. Park
Sep	1 - 4	Thu-Sun	Oregon Star Party	Indian Trail Springs*
Sep	3	Sat	RCA Star Party	Larch Mountain
Sep	17	Sat	Autumnal Equinox	OMSI East Parking Lot
Sep-Oct	30 - 2	Fri-Sun	RCA Dark Sky Star Party	Camp Hancock
Oct	29	Sat	RCA Star Party	Larch Mountain

* Indicates camping or camping nearby.

** Good day to stay off the mountain!

For all events: weather permitting. Schedule subject to change.

RCA members do also occasionally get together for other impromptu star parties.
RCA's E-mail list provides you with the opportunity to hear about these spontaneous opportunities as they occur.
If you are an RCA member and would like to be added to this list, please send email to Dareth at darethlee@comcast.net requesting that you be added to the list.

For more information about all RCA activities, please check out our club's web site at: http://www.rca-omsi.org/
Or call our club's phone information line at (503) 255-2016.

Much discussion has been held regarding the SAFETY of RCA members while observing at public or private locations.
The RCA does NOT assume any liability for the actions of others and can NOT guarantee your safety at any site.
It is always a good idea to observe in small groups to minimize your risks.

Star Party Driving Directions

CAMP HANCOCK

OMSI's Camp Hancock Field Station is located near Clarno. You have two basic route choices to choose from.1) Take I-84 east from Portland to Biggs Junction (exit 104), exit and head south on Hwy 97 to Shaniko.2) Or you may take Hwy 26 east over Mount Hood. Turn left onto Hwy 216, which will take you to Hwy 197 just west of Maupin. Turn right on Hwy 197 and take it south to it's junction with Hwy 97. Turn left onto Hwy 97 and take it to Shaniko. At Shaniko, turn south on Hwy 218 (Shaniko-Fossil Hwy) and continue through Antelope and east towards Clarno near the John Day River. Look for the entrance to Camp Hancock about two miles east of the John Day River.

INDIAN TRAIL SPRING

Travel east out of Prineville on Hwy 26 approximately 14 miles past the Forest Service Headquarters located at the east end of town, turn right onto the Ochoco Ranger Station Road. Zero your trip meter and travel 8.4 miles, until you come to a Y in the road just past the Big Summit Ranger Station. At this Y, stay to the right turning onto FS road # 42. Follow this for 19 miles as it winds up into and through Big Summit Prairie. Then turn right onto FS 4240 and proceed for 2.7 miles, turn right onto FS-800. Go 1.5 miles west on 800 and you will arrive at Indian Trail Spring. The site is located on National Forest Service lands and is at 5000 feet of elevation.

KAH-NEE-TA

Travel east on Hwy 26 past Mt. Hood Government Camp, turning south towards Bend at the junction on Mt. Hood. Turn Left towards Simnasho (approximately 29 miles east of Government Camp - Big Kah-Nee-Ta sign on Hwy 26). Follow the road to Kah-Nee-Ta resort (also marked by large sign at resort driveway entrance). On the way to the resort, you'll pass the observing site before dropping down into the river valley. It is in the open field up to your left from the highway close to the Mile 14 mile-post marker.

LARCH MOUNTAIN

From Portland take I-84 towards Hood River and take exit #22 for Corbett. Zero your trip meter at the stop sign. At the stop sign you turn right and head up the hill towards Corbett. At 1.3 miles the road Y's, stay left at this "Y" and then take a left onto the Columbia Gorge Scenic Hwy. Zero your trip meter and proceed for 1.9 miles, take a right onto Larch Mountain Road. It is paved and marked with a big sign. Follow the road to the top of Larch Mountain (14 miles). At the top you turn right (just before the parking lot) into a large unpaved open area. You are at 4000 feet elevation.

ROOSTER ROCK

Head east on I-84 from Portland. Take exit #25 and loop over the freeway to the State park. Day Use Permit is $3.00 nonmember / $1.50 OMSI member per vehicle at Rooster Rock State Park.

WHITE RIVER CANYON

From Portland, take Hwy 26 east towards Mt. Hood. Shortly past Government Camp, you will see a sign for Hwy 35 (Hood River turn off). Take this exit and go approximately 4.2 miles and look for a green sign marked "White River Canyon BSA Lodge Parking". Go past the entrance roughly 50 yards and turn left into a large Forest Service parking area.

Awards

Glen Graham
Messier Certificate # 1961
All 110 Messier Objects

Martin Alvey
Caldwell Certificate # 75
More Than 70 Caldwell Objects

For more info visit:
http://www.astroleague.org/al/obsclubs/obsclub.html

Rose City Astronomers 'Downtowner's' Lunch

Join us on the first Friday of each month for lunch at the Great China Seafood restaurant (Holidays and such may push us to the second Friday of some months, check the calendar at http://www.rca-omsi.org).
Cost is $6.50 for all-you-can-eat Chinese Buffet Lunch.
Great China Seafood restaurant
334 N.W. Davis, Upstairs on the 2nd floor
Great conversation and buffet lunch.
For more information contact: Margaret McCrea at mmcrea@nwlink.com

Observing Site Committee

To lead and coordinate efforts of the Rose City Astronomers (RCA) in securing and managing a variety of observing sites for private use by members, and for community outreach and special events organized by the RCA.

Next Meeting: Monday, February 7—Immediately after the RCA Board Meeting
OMSI Classroom 1

Please Check http://nemoworld.com/RCA/sitehome.htm to confirm and for more information.
Or Contact: David Nemo <david6366@msn.com>

Telescope Workshop

Date/Time: Saturday, February 19, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

Contact: John DeLacy <johncdelacy@comcast.net> for more information

Astrophysics / Cosmology SIG

Date/Time: Thursday, February 24, 7 PM.
Speaker/Topic: Tom Billings "In the Near Future: Policy & Commerce in Space "
Place: Linus Pauling Complex, 3945 S.E. Hawthorne St., Portland.
Contact: Bob McGown (503-244-0078)
or Dareth Murray, (503-957-4499) for more information.

We are looking for speakers to lead a discussion. What is your favorite topic in Astrophysics or Cosmology? Let's talk about it! Call Bob at 503-244-0078 or email him: bobmcgown@comcast.net

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

February 2005

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					

February 2005

Feb 7	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
Feb 19	Sat	Telescope Workshop	Swan Island	10am—3pm
Feb 21	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Feb 24	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

March 2005

Mar 7	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
Mar 11-13	Fri-Sun	Messier Marathon!	Kah-Nee-Ta	
Mar 19	Sat	Vernal Equinox Celebration	OMSI East Parking Lot	
Mar 21	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Mar 24	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 3 Newsletter of the Rose City Astronomers March, 2005

In This Issue:

Hubble Deep Field above courtesy R. Williams (STScI), the Hubble Deep Field Team and NASA.

Moon photos below courtesy David Haworth

March 2005 General Meeting

Timing the Hunt

By Bernie Taylor

Man has hunted deer and elk for tens of thousands of years during which time he gained knowledge about the biology of these magnificent animals. He built celestial calendars to gauge their movements, recorded when and where they would be present in his rock art and wove the directions on how to best hunt them into his stories. He primarily timed his hunts around the sun and moon. Yet, biologists today look at the length of day and the weather to explain the behavior of these animals. The difficulties with this modern approach is that day length is too flat from one week to the next to time an event and the weather is too variable to help the animals to synchronize their behavior.

Author Bernie Taylor offers another explanation in his book Biological Time (see http://www.biologicaltime.com). He demonstrates that the deer and elk are entrained to reliable solar and lunar cues, as is believed by indigenous peoples, and that because the cycle of the moon is not in step with the movement of the sun events, such as migration, rut, antler shedding, and dropping of the young, appear to be early or late from one year to the next. Taylor also provides evidence that prehistoric man in France recorded this knowledge 17,000 years ago on the walls of caves and that the Tribes in the Pacific Northwest follow these principles to harvest deer and elk at the present time. The program brings together biological, historical, archaeological and astronomical evidence from around the globe and takes us back in time to understand why astronomy is the root of all other sciences.

Everyone is Welcome!
Monday March 21
Social Gathering: 7 p.m.
Meeting Begins: 7:30 p.m.
Location: OMSI Auditorium

Deadline for submission of articles, ads, and photos for the Gazette is the 20th of each month.

Last Quarter Moon
March 3, 9:37 AM. PST

New Moon
March 10, 1:13 AM PST

First Quarter Moon
March 17, 11:19 AM. PST

Full Moon
March 25, 1:01 PM. PST

Club Officers			
President	Carol Huston	(503) 629-8809	StarsCarol@comcast.net
Past President	Peter Abrahams	(503) 699-1056	telscope@europa.com
VP Membership	Ken Hose	(503) 591-5585	khose@comcast.net
VP Observing	Matt Vartanian	(503) 244-5023	matt@vartanian.net
VP Community Affairs	Jeff Sponaugle	(503) 590-5522	jsponaugle@kryptiq.com
VP, Programming	Matt Brewster	(503) 740-2329	m_brewster@juno.com
Treasurer	Ginny Pitts	(360) 737-0569	vepitts@comcast.net
Assistant Treasurer	Ed Epp	(503) 284-5834	epp@zdome.net
Secretary	Ken Cone	(503) 292-0920	kcone@hevanet.com
Sales Director	Sameer Ruiwale	(503) 681-0100	sameer_ruiwale@hotmail.com
Newsletter Editor	Larry Deal	(503) 708-4180	gazette_ed@comcast.net
New Member Advisor	Jim Reilly	(503).493-2386	jimrpdx@granitic.net
Web Master	Dareth Murray	(503) 957-4499	darethlee@comcast.net
Alcor, Historian	Dale Fenske	(503) 256-1840	fenskedf@juno.com
Library Director	Jan Keiski	(503) 539-4566	jikeiski@comcast.net
Telescope Director	Greg Rohde	(503) 629-5475	gfrohde2000@yahoo.com
Observing Site Director	David Nemo	(503) 224-6366	david6366@msn.com
Media Director	Patton Echols	(503) 936-4270	mpecho@rdrop.com
IDA Liaison	Bob McGown	(503) 244-0078	bobmcgown@comcast.net
OSP Liaison	Dareth Murray	(503) 957-4499	darethlee@comcast.net
Camp Hancock Liaison	Glenn Graham	(503) 579-1141	the.grahams@verizon.net
Subscription Director	Larry Godsey	(503) 675-5217	larrygodsey@att.net
SIG Director	Margaret McCrea	(503) 232-7636	mmcrea@nwlink.com
Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.org

RCA

MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is reduced rate subscriptions to Sky & Telescope and Astronomy magazines. Sky & Telescope Magazine is $32.95 for one year. Astronomy magazine is $29 for one year or $55 for two years. For more information go to larry's web page:

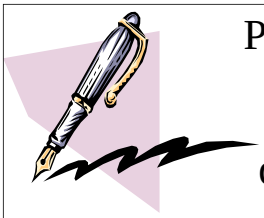
larrygodsey.home.att.net/magazines

Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings.

Please Note: Allow two months for your subscription to be renewed.

Sky & Telescope Store Discount

RCA members who subscribe to *Sky & Telescope* are entitled to a 10% discount at the *Sky & Telescope* online store at: *http://skyandtelescope.com/shopsky* To get your discount, enter Rose City Astronomers when prompted for your club name during checkout at the *Sky & Telescope* online store.



President's Message

By Carol Huston
March 2005

Rose City Astronomers is a member society of the Astronomical League (AL), a national organization composed of over 240 local amateur astronomical societies from all across the United States. These organizations, along with various individual members, form one of the largest amateur astronomical organizations in the world. The Astronomical League's mission states: To promote the science of astronomy by fostering astronomical education, by providing incentives for astronomical observation and research, and by assisting communication among amateur astronomical societies.

What does this membership do for our club and for our members? Probably RCA's biggest benefit as a member of the AL is member participation in observing programs that culminate in observing awards. These observing programs range of beginner efforts (Binocular Messier, Constellations, Messier Objects, Lunar, etc.) to more advanced projects (Herschel 400, Herschel II, Arp Peculiar Galaxies, Galaxy Groups and Clusters, Master Observer's Program, etc.). In fact, RCA members have authored and maintain a couple of these nationally recognized observing programs: The Herschel II Program and the Galaxy Groups and Clusters Program. If you are at all interested in working on a rewarding and challenging (but fun) observing program, contact your New Member Advisor Jim Reilly at a general meeting to get more information.

(Continued on page 4)

Camp Hancock
April 8th – 10th and May 6th – 8th

Camp Hancock is always a great weekend outing for RCA and we're going twice this spring. As usual they have asked us not to enter the camp grounds before 3pm on Friday.

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. For maps, pictures, and more info go to the OMSI Hancock web site. Camp Hancock is NOT a resort hotel; it is a rustic kid's camp with 16 bunkhouses that sleep up to 14 people in A-frame buildings. The bunkhouses are one room with bunks, mattresses, limited electricity and heaters on a 60 minute timer. You will be sharing the bunkhouse with others in our group.

Lodging:

The bunkhouses are not reserved, except by prior arrangement for medical necessity. Bring your own warm sleeping bag (it will be cold at night) and whatever else you need. Please inform Larry Godsey at larrygodsey@att.net or 503-675-5217, as soon as possible if you have special diet needs or have medical issues. One of the cabins will be set aside as a "ladies only" bunkhouse and one as a "men only" bunkhouse. The remaining bunkhouses are first-come and you will be sharing with others. There is a limited area for Tents, RVs and trailers. We've been usually able to provide limited electricity to most of the RVs and trailers, but bring your own power cord, and be prepared to be self sufficient in case there is not enough power available.

Meals:

Camp Hancock offers breakfast and a sack lunch (Saturday and Sunday), and dinner (Friday and Saturday). The meals are served family style and everyone is expected to help with setting up, clearing the tables and doing dishes.

Breakfast is served at 9am Saturday and Sunday, with fixings put out for making a sack lunch at 10am both days. Dinner will be at 6pm on both Friday and Saturday.

Everything must be paid for with your registration before April 2nd. Meals must be preordered and can NOT be purchased on-site. There are no refunds after April 2nd.

Breakfast - 9am - is $4.50 per person per day (Saturday & Sunday)

Sack Lunch - 10am - is $3.50 per person per day (Saturday & Sunday)

Dinner - 6pm - is $5.00 per person per day (Friday & Saturday)

RVs, trailers and Tents are $8 per night per unit, not per person.

Bunks in the A-frame bunkhouses are $14 per person per night.

Registration:

Mail-in registration and payment deadline is one week before the outings and there will be NO REFUNDS AFTER those dates. We will cut off registration if we reach capacity of 100 people earlier. You are not registered until a check is received!

More Information:

There is more information on the web, including an order form you can fill out on-screen. The information, including pictures, downloadable Camp Hancock information, Clarno Fossil Bed information, driving maps and instructions, etc. will also be found on the web.

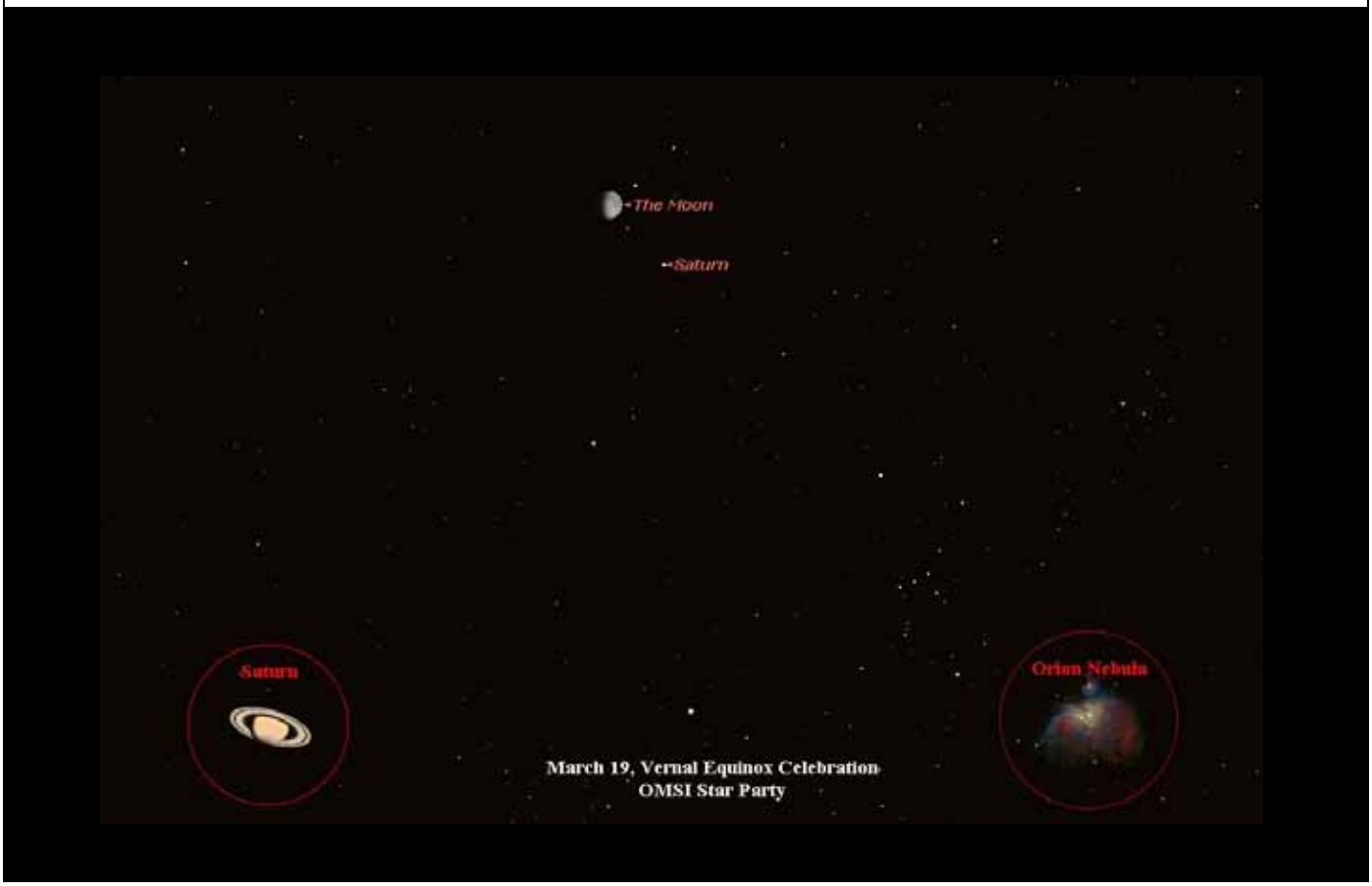
Go to "http://larrygodsey.home.att.net/hancock/" for complete information and registration forms.

Rose City Astronomers 'Downtowner's' Lunch

Join us on the first Friday of each month for lunch at the Great China Seafood restaurant (Holidays and such may push us to the second Friday of some months, check the calendar at http://www.rca-omsi.org).
Cost is $6.50 for all-you-can-eat Chinese Buffet Lunch.
Great China Seafood restaurant
334 N.W. Davis, Upstairs on the 2nd floor
Great conversation and buffet lunch.
For more information contact: Margaret McCrea at mmcrea@nwlink.com

March 19: OMSI Star Party

Spring officially begins with the vernal equinox on Thursday, March 20 at 4:33 am PST. On Saturday evening, March 19, OMSI, Rose City Astronomers and Vancouver Sidewalk Astronomers will celebrate the vernal equinox and the beginning of spring with a free Star Party! Join us as we gaze at the spring sky at OMSI's east parking lot, located on 1945 SE Water Ave, starting at 7:30 pm. From beginners to experts of all ages, here's your opportunity to view the stars, and other objects up-close and personal through telescopes. Viewing highlights includes the planet Jupiter and Saturn, Orion Nebula, Beehive star cluster, and more! For possible weather cancellation, call (503) 797-4610 on March 19 after 3:00 PM to get the latest information. The 2005 OMSI Star Party schedule can be found on the OMSI website at www.omsi.edu <<http://www.omsi.edu>> under the planetarium links.



Presidents Message *(Continued from page 2)*

Another benefit our RCA members receive from the AL is their quarterly newsletter, The Reflector. To make sure you are receiving your AL newsletter on schedule, please make sure your address stays current in the RCA membership roster. The AL sponsors an annual meeting each year, held in the summer months. This year's event will be held August 12-13 in Kansas City and features a trade show, book exhibition, and many speakers and activities. The AL provides club and organizational information for member societies to help individual groups make their own club more effective and successful. As a member society, our RCA members also receive a book buying service, where you can order astronomical related books at 10% discount, without paying shipping costs.

To acquaint yourself more fully with what you can receive from the national AL, you can visit their website at http://www.astroleague.org for more complete information. As a member society of the AL, RCA is proud to pass on these many benefits to our members.

The 2004 Rosette Gazette All Stars!

Each person below contributed content to at least one issue of the Rosette Gazette last year. (asterisk indicates unique contributions to two or more different issues)

Peter Abrahams*
Padraic Ansbro*
Howard Banich*
Matt Brewster*
Michael Cole*
Ken Cone*
Tim Crawford*
John DeLacy
Chuck Dethloff*
Judy Dethloff
Dale Fenske*
Jenny Forrester
Ron Forrester
Jim Girard
Larry Godsey*
Dan Gray
Dave Haworth*
Carol Huston*
Terry Johnson*
Jan Keiski*
Howard Knytych
Bernie Kuehn
Margaret McCrea
Bob McGown*
Dareth Murray
Tom Nathe*
David Nemo*
Dave Sandage*
Mark Seibold
John Siple*
Debra Smith-Hirshmann*
Wes Stone
Jim Todd*
Matt Vartanian*

let me know if you feel you should be on this list. I'll do an addendum next month. Ed.

Observing Site Committee

To lead and coordinate efforts of the Rose City Astronomers (RCA) in securing and managing a variety of observing sites for private use by members, and for community outreach and special events organized by the RCA.

Next Meeting: Monday, March 7—Immediately after the RCA Board Meeting
OMSI Classroom 1

Please Check http://nemoworld.com/RCA/sitehome.htm to confirm and for more information.
Or Contact: David Nemo <david6366@msn.com>

BOARD MEETING MINUTES

February 7, 2005
OMSI Classroom 1
Ken Cone

President Carol Huston called the meeting to order at 7 pm.

Board members present: Peter Abrahams, Matt Brewster, Ken Cone. Patton Echols, Ed Epp, Larry Godsey, Ken Hose, Carol Huston, Jan Keiski, Bob McGown, Ginny Pitts, Greg Rohde, Sameer Ruiwale, Jeff Sponaugle, Matt Vartanian

Guests: Lenore Trainor from Bloomington, IL

Board Reports:

- Secretary's Report – Ken Cone: Quorum (12) met with 15 voting members present.
- Treasurer's Report – Ginny Pitts: Cash in accounts $ 13,183.03
- VP Programming – Matt Brewster: John Cramer will speak in February.
- VP Observing – Matt Vartanian: Messier Marathon on 3/11. Kah-Nee-Ta is ½ full so sign up asap. Next year in order to guarantee main lodge rooms, we need to start the organization process in December and notify people to begin reserving rooms. Many of this year's rooms are at the village, within walking distance of family activities. 3/19 is the OMSI Vernal Equinox public star party.
- VP Community Affairs – Jeff Sponaugle: School science fairs coming up – two in March, one in April, and one in June. Need volunteers from the club. Email or call Jeff if you are interested in helping. Jeff will send a notice to the email list.
- VP Membership – Ken Hose: Two new members and four renewals from Jan meeting for a total of 282 member families. About half of the sections for new member packets are updated. Updates still needed are OMSI page, sales page, area observatories, reference guidelines, message from President. Ken brought a draft package for board review.
- New Member Advisor – Jim Reilly (absent): No report.
- Media Director – Patton: Continues to make media contacts, no activities to report, will complete media guide for new member packet in the next few days.
- Sales – Sameer Ruiwale: January sales totaled $545.00.
- Book Library – Jan Keiski: Jan needs more volunteers to help with the library and will be seeking some help. If you would like to volunteer, see Jan at the February meeting.
- Telescope Library – Greg Rohde: Discussion of a 12 ½ inch scope taken by one member and not returned. The scope is not in working order; however, the optics appear to be ok. Greg will get the scope and take it to the telescope workshop for evaluation.
- SIGs – Carol for Margaret McCrea (absent): Definition of a SIG is a group of people who want to get together to do/talk astronomy. The group needs to be self supporting.
- IDA – Bob McGown: National IDA library formed, looking for donations of technical books. Example is a copy of the Illuminating Engineers Handbook, Bob is also looking for a copy for RCA library. Discussion of local dark sky preserves in neighborhoods and away from populated areas. Check IDA web site for upcoming events. Bob gets Illuminating Engineers Society email if anyone is interested.
  AR: Bob to write an IDA article in the Gazette.
- Magazine Subscriptions – Larry Godsey: $490.55 in magazine subscriptions for last month.
- Gazette Editor – Larry Deal (absent): No report
- Webmaster – Dareth Murray (absent): No report
- Alcor/Historian – Dale Fenske (absent): No report
- OMSI – Carol Huston: No report
- Site Committee Director – Carol for David Nemo (absent): The committee would like to see more board email discussion on the site selection. They are waiting on RCA board for direction and decisions on the scope of their proposal and the specifics of fund raising. Committee proposal is to get three sites. Some board members are uncomfortable with starting out with three sites, as well as the amount of ongoing maintenance and funding this would require. Carol suggested having a structured email discussion over the next month and then bringing in a facilitator to lead the board discussion at the April board meeting.
  AR: Each board member will review David's proposal before next board meeting and provide feedback.
  AR: Ginny to send David Nemo info about non profits hiring fund raisers
  AR: Carol will look into finding a facilitator for the site committee discussion
- Other: JRCA, Copying, Misc: No reports.

Old Business

- AR – Greg Rohde: Check with Randy Mays about returning a library scope. DONE
- AR – Ed Epp: Get with Carol & Ginny to review budget report format. Board members to e-mail their ideas to Ed and Ginny Ed got couple of inputs, need to get back with Carol. STILL OPEN
- AR – Carol: Negotiate with OMSI for second week in Dec for holiday social. Got it for Dec 12. DONE

(Continued on page 7)

February Board Minutes *(Continued from page 6)*

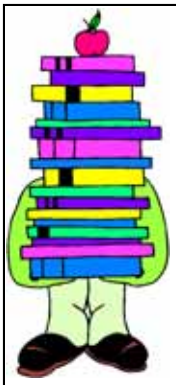
Old Business Continued

- AR – Margaret: Meet with Carol to discuss role of SIG Director. Meeting held. Margaret agreed to coordinate volunteer efforts in addition to SIG role. DONE
- Patton: Make media contacts, building list of contacts. STILL OPEN Patton will be initiating a future discussion on direction of publicity. Not an "A.R." yet because of other pressing issues.
- AR – Larry: Contact Jim Todd re: Hancock, to organize work party. STILL OPEN
- AR – Carol: E-mail phone instructions to the board. DONE.
- Phone Line Report – Larry: Not much activity in January.
    - Feb 8 through Mar 7: Patton
    - Mar 8 through Apr 4: Matt V

New Business

- KenC: Minutes – Parameters. AR Ken will set deadline of one week from board meeting for email corrections, then final minutes go to Gazette. Will test this month.
- Carol: Board Titles – There was board email discussion to re-title appointed board positions into directorships (voting) and coordinators/liaisons (non-voting).
  AR – Peter will craft a motion for next meeting to clarify the proposal to change some of the board positions to non-voting positions in order to stabilize board membership to voting members and to help facilitate volunteers as non-voting members. It is important for voting members to be at board meetings to conduct RCA business whereas board attendance is optional for volunteers.
- Goals for upcoming year – Carol: Re-establish connection with NWRAL and AL activities; youth programs such as Scouting modules and science fairs; light pollution issues. Would like to have an annual review of records and recordkeeping practices with a CPA and has lined up Judy to do this review in July. Proposed a Board contact numbers listing and a Board information web site. Awards committee for formalizing the awards process for annual appreciation, Galileo Service Award, and thanking monthly speakers (propose Bob, Doug, Dareth, and Dale to be first committee). Reviewed donation receipts and guidelines about donations that meet our 501c3 requirements. MOTION: Bob moved and Ginny seconded that we adopt the policy for receipt writing proposed by Carol. Reviewed annual schedule of actions and asked for Board input.
  AR – All Board Members: Review schedule by next meeting and add actions as appropriate.
- OMSI Agreement – Carol: Agreement put together in May. RCA agrees to staff eight public star parties with OMSI providing the coordination and press for these events. RCA also agrees to staff one OMSI community event and one OMSI workday session in the Planetarium.
- Review of Bylaws – Carol: Postponed to next month. Board members are to bring their copies of the bylaws to the next meeting for review.
- Articles of Incorporation – and 501c3 organization – Carol: What these mean. Carol developed a maintenance document to cover our legal obligations and maintenance. Will review these next month.

Meeting adjourned at 9 pm.



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CD-ROMs 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,

Jan Keiski (jikeiski@comcast.net)
503-539-4566

Visit the RCA library web page at:
http://www.rca-omsi.org/library.htm

A comprehensive listing, by month and state, of all the major U.S. Star Parties
for amateur astronomers can be viewed at
http://www.chartmarker.com/

Please contact us at chartmarker@cox.net if we missed any. If you sponsor a Star Party, send us your dates and URL so we can update our list.

We will also list and link to selected special events in the Southwest area on our homepage. Send information about your event and URL for a listing.

Pat and Arleen Heimann
ChartMarkers and More
http://www.chartmarker.com

White River Winter Observing Outing

By Meg Grace

Wednesday night, February 9th; John Minard, Larry Leach and I made a very last minute decision to go to the White River observing site and experience winter astronomical observing. For sure, we experienced winter!

Due to circumstances beyond our control [dinner with friends, school, you know - life!], we left Portland about 9:30pm and arrived at the White River Sno-Park parking lot around 10:45pm. On the drive up the mountain, as we chatted and caught up with each other's lives, I glanced out the window [I was not driving!] and stared at the dark sky. There were so many stars! It had been too long since this observer was out of the city on a clear dark night.

There was one lone pickup truck in the parking lot when we arrived. At first we thought there was another astronomer already there as there were large plastic bins parked on the pavement behind the truck. We went to the other end of the parking lot just in case someone was sleeping in the cab. <shrug>

We quickly set up in the cold, pausing now and then to look up and stare. John used his green laser to point out a few objects. Of course, the Orion Nebula and the Beehive Cluster were naked eye objects. There is such magnificence in the night sky. I was filled with awe and gladness. We three agreed that even if we didn't find the objects in our plan that night, just being out under the late winter clear dark sky was worthwhile in itself.

I first turned my 8" reflector towards M42. I think it's good to start an observing session with an easy object. Luckily, this is an object that is always worth looking at. I have sketched this object a few times now and I am able to see more and more in it each time. But last night, there was no leisurely sketching to be done. My thermometer registered 21 degrees for a low during our time at White River. I just drank in the immense beauty of this feathery nebula.

Next, I swung over to Gemini and found M35. This open cluster is also easy to find, perched just off the end of the Northern foot of this constellation. There is a smaller star cluster practically snuggled up into M35, NGC 2158. This is a Herschel object and I duly logged it for my list.

I found myself getting out my planisphere and getting reacquainted with this season of stars. Leo, Leo minor, Coma B. and Virgo. I took a nice leisurely pan through Coma and Virgo, just to see what galaxies I would run across. I hope to try a Messier Marathon in March and that means reviewing these two constellations many times to get ready. It was fun to pan a small section of the sky and notice star positions and paths.

It would probably be more accurate to say that my leisurely pans were inspired by the cold weather. I didn't want to keep taking my gloves off to turn pages on a star map or look up a Herschel object on my list.

I've got to find a better way to keep my thumbs and toes warm. The rest of me was warm, though. I use the packaged hand warmers stuffed in my flip-top mittens. Around 1am, John, Larry and I hopped in the car to warm up. We had hopes of staying another hour or so, but it was not to be. Once we settled into the comfort of the inside of John's truck, we decided that we were only getting out to put away our equipment!

John was able to finish his Herschel objects in Bootes. Larry was working on Messiers in Leo. We packed up our gear and headed down the mountain around 2am.

Back on 26 West, an accident on the highway detoured us through some neighborhoods in Sandy. John pulled over to remove his jacket and sweater and we were blessed with a view of wildlife. John saw a deer nibbling on something by the side of the road, practically leaning on a mailbox. As our vehicle resumed its travel west, we saw the lone deer's 5 friends scamper from someone's front yard into the trees. It was a nice ending to a great night of winter observing.

The Rose City Astronomers Launch Your Star Party Season with RCA's Messier Marathon

Traditionally, RCA has opened its star party season each year by holding a Messier Marathon in March on the new moon weekend. Even though it is billed as a Messier Marathon, observers (and their families) come for many reasons: to try their hands at locating as many of the 109 Messier Objects as they can during a one-night shot; to observe their favorite objects under Central Oregon's clear dark skies; to spend a wonderful weekend with other astronomers swapping observing stories and exchanging information; or even just to spend a relaxing weekend with their families – all in comfortable accommodations that offer various other activities.

(Continued on page 9)

Messier Marathon *(Continued from page 8)*

This year's event is being held March 11-13 at Kah-Nee-Ta Resort. To make your participation in this activity more enjoyable, there is some advance preparation you can do that will help pave the way for a fun, comfortable night (or two) of viewing:

- SUPPLIES: Taking care of your personal comforts in advance can make or break your enthusiasm for participating in what could potentially be close to a 10-hour session of observing. Wear warm clothing in layers including warm footwear, a hat, and gloves. Bring some kind of chair for resting. Bring a thermos of coffee, hot chocolate, or soup and other pepper-up type snacks to jolt your flagging energy. Don't forget your handy equipment such as a red flashlight, extra batteries, dew protection, charts, and note-taking supplies. If you are totally new to observing and need more information, see the Member Services Table at a RCA general meeting and pick up the member guides "Introduction to Star Parties," "Star Party Supplies," and "Star Party Etiquette." (In addition, these articles are available on the Beginner's Section of the RCA Web Page at http://www.rca-omsi.org)
- BE PREPARED: Have a good plan prepared ahead of time outlining the objects you want to observe. If you are doing the Marathon, a search sequence of objects is a critical element to strategically moving your way across the sky as objects are setting in the west. Procure or develop a search sequence, and look it over. (Search sequences will be available at club meetings before the event, as a handout that weekend, and among the reference materials listed below.) You will not have much time between the first signs of darkness and the time several of the first tough objects on your list will set in the west, so a good plan is essential to observing these. It is a good idea to review ahead of time the search sequence for the Virgo Galaxy Cluster, and maybe even to prepare your own map through this area. All members are encouraged to attend, even without observing aids. Note that you can observe many of the Messier Objects with binoculars. Many observers who set up their own telescopes are eager to share the sights of the universe and help novices learn more about equipment, how to find objects, and enjoy the wonderful views. However, be sensitive to the observer who is racing the western horizon in a time crunch to log objects before they disappear.
- GET THERE EARLY: Get to the site as early as you can so that you can enter the area and set up your equipment before it turns dark. The field is easy to maneuver a vehicle through, but if you've never done it in the dark, you could end up in a ditch – which has happened. You will need to be set up and ready to go for those first objects if you are doing the Marathon. The Saturday banquet will be held fairly early (at 4:30 PM) to give people a little bit more time to eat a relaxing dinner before heading up to the observing hill.
- MARATHON NOTES & HINTS: View as many objects as you can as early as you can. RCA member Jim Reilly, a veteran Messier Marathoner, has written in his log of Marathon experiences: *"You will know immediately if you can reach all of the Messiers. The first two (M74 and M77) are among the toughest every year. Study your charts ahead of time so you are very familiar with where they will be located, and train your telescope on that area as the sky starts to dim and objects become barely visible right before disappearing over the horizon. Hopefully, you will get lucky! After that, be sure to reach M79 in Lepus early as its southerly location causes it to drop fast. The Cassiopeia/Perseus area and M33 also depart early, but it needs to be fairly dark before Andromeda's companions (M32 and M110) and tiny M76 will show up in a smaller scope."* Once the first early objects are located, you may then begin to work at a slower pace. The first part of the session will end in the Virgo cluster of galaxies. They will challenge even the hardiest of observers. After the Virgo cluster is complete (sometime around 1 AM), you may then take the one nice long break of the night -- a good time to relax a bit, refuel, and see how other observers are faring. You should start back on the search by 2:30 AM in order to find all of the objects left on the list. If you get hung up on any of the remaining objects, remember that they are rising. Don't waste time becoming stranded on one of these; continue with the next objects and come back later to the ones that tripped you up. Daylight will invariably win the race as you scramble for the final few treasures – including the elusive M30 which is the ultimate morning object.
- RESOURCES: There are many books, charts, and internet sites that highlight the Messier objects and/or the Messier Marathon. One of the best internet sites is the Messier Marathon Web Page (http://www.seds.org/messier/xtra/marathon/marathon.html). This site has lots of information and many links to help prepare you for this event. Some other reference pieces are: The national Astronomical League's guides, "The Messier Objects: A Beginner's Guide" and "The Binocular Messier Club," both available at RCA Sales; the observing program section of the national Astronomical League's web page; "The Messier Marathon Observer's Guide," a book by Don Machholz; "The Messier Album," a book by Mallas and Kreimer; "Messier's Nebulae & Star Clusters" by Kenneth Glyn Jones (a fantastic book but expensive); "Finder Charts of the Messier Objects, Volume 1 and 2" by Brent Watson; and many other books, posters, and charts available through "Sky & Telescope" and "Astronomy" magazine book services.

The Messier Marathon's main purpose is to provide an event where observers can have fun observing, no matter how they choose to participate. For those who try to do the Marathon, the competition is friendly. Messier Marathons, while a challenge for seasoned observers, are designed to improve your viewing skills. As the springboard for the Rose City Astronomers' star party season, it is a fun event for observers to stretch their winter observing skills while providing a pleasant retreat for the whole family.

Observing the Caldwell List

By Martin L. Alvey

Introduction

The Rose City Astronomers prides itself on being an "observing club". I would like to share my experience with Club members regarding the Astronomical League's Caldwell Observing Program having turned in the finished documentation for the program in October 2004. I hope this article is useful to those who would like to work through this fun, and challenging observing program.

The Caldwell Observing Program

Famed British astronomer Sir Patrick Caldwell-Moore created the Caldwell Observing Program one night after observing his subject, the Moon. As he casually glanced over at Perseus, he thought to himself that the Great Double Cluster has no Messier number. Remembering that Messier had created his famous list as a list of objects to *avoid* while chasing comets, Sir Patrick decided to create a catalogue of 109 "bright nebular objects" omitted by Messier. His catalogue was a hit with the folks over at Sky & Telescope. The objects were designated with a "C" in front of the number (for Caldwell-Moore) because "M" (as in Moore) had already been taken by the Messier list.

The 109 Caldwell objects are arranged numerically starting high in the sky at Declination +85° and extending far into the Southern Hemisphere to -80°. For instance, C1 (NGC 188 in Cepheus) is located a stone's throw from Polaris, while C109 is located far south in Chamaeleon.

This arrangement of the objects made it easier to locate objects on star charts, on Sky & Telescope's "Caldwell Card", and on the maps on the inside covers of Stephen James O'Meara's Deep-Sky Companions: The Caldwell Objects. The Caldwell objects range in magnitude from magnitude 1 through magnitude 13.

The Requirements

To qualify for the award, you must belong to the Astronomical League either through a club or as a member-at-large. Go-To telescopes may not be used. Your observations must be recorded on the Deep-Sky Observing form, or some similar substitute. Like the Messier list, your notes must contain enough information to convince the society's award coordinator that you did, indeed, observe the object.

There are two levels of awards presented. The Gold Certificate for those who have observed all 109 Caldwell objects. The Silver Certificate is awarded to those who have observed at least 70 of the 109 Caldwell objects. Each level of Certification comes with its own pin, certificate, and a letter from Sir Patrick congratulating you on completing the program. The Silver Certificate has an enameled picture of the Cat's Eye Nebula (Northern Hemisphere) while the Gold Certificate has an enameled picture of the Tarantula Nebula (Southern Hemisphere). At the time this article was written, there were only 11 Gold Certificate awardees and 81 Silver Certificate awardees.

Tools

I relied primarily on used four sources in completing the Caldwell program.

The most important source was the O'Meara treatise, Deep-Sky Companions: The Caldwell Objects. This book has a very useful beginning chapter describing the background of the program and how to go about conquering the program.

(Continued on page 11)

Observing the Caldwell List *(Continued from page 10)*

Each Caldwell object is listed sequentially after the opening chapter. Each object is described in detail. Each description contains a summary the object, the original Herschel description of the object, it's declination, magnitude, size, NGC number, constellation, and common-name of the object. A photo of each C object is shown (sometimes more than one), a finder chart, and a hand drawing of what you are likely to *actually* see through your telescope. I found the hand drawing to be very helpful. These descriptive chapters were the most helpful tool I used.

I also relied heavily on The Night Sky Observer's Guide by George Robert Kepple and Glen Sanner available from Willmann-Bell, Inc. This two volume set contained additional photographs, finder charts, and descriptions of the objects.

I recommend buying Sky and Telescope's "Caldwell Card" which is available from the Sky and Telescope website: **http://skyandtelescope.com/shopatsky**. It proved to be the best $4.95 I spent on this project. The card contains a list of the Caldwell Objects and three star charts showing the location of all 109 objects. All of this information is packed onto a laminated 8.5 by 11-inch card that is easily carried to your scope.

Finally, I could not have done this program without my trusty Sky Atlas 2000.0.

I kept my field notes in inexpensive Marble Composition Books. I had a rubber stamp made with the topics: NGC number, Seeing, Constellation, Date, Location, Scope used, Time, Power and Object type embedded in the stamp to avoid having to write all of the topics to be noted each time I observed a new object. When it was time to write about a new object, I just stamped the page with the stamp and filled in the blanks. I left room below the stamped information for my notes and any drawings I made of the object or of the area in the sky so I could find my way back to the object in the future. Once I got home, I typed my notes into an Access database table, and then printed typed reports from there.

My Observations on the Program

Like the Messier list, some of the Caldwell objects were naked eye objects: The Double Cluster in Perseus (C14), and The Hyades (C41) in Taurus are examples of naked eye Caldwell objects.

The next group of objects contains what I called "old favorites". How some of these were missed by Messier is beyond me: The Veil Nebula (C33 and 34), The Helix Nebula (C63), and the Rosette Nebula (C49). If you have used the flip chart observing tools "Finder Charts of Overlooked Objects" and "Finder Charts of Bright Telescopic Objects", then you have seen many of the Caldwell Objects that fit into the "old favorites" category.

The Caldwell Program also contains many planetary nebulae: The Cat's Eye (C6), the Blinking Planetary (C15), The Eskimo Nebula (C39), The Saturn Nebula (C 55), The Ghost of Jupiter (C59), and The Bug Nebula (C69), are examples.

The program also contains objects that I found to be very difficult to find. There were others I just shook my head at because they were so underwhelming I had difficulty figuring out why they were included in the program.

In the very difficult category I would have to note C9-the Cave Nebula or Sharpless 2-155 in Cepheus.

(Continued on page 12)

Observing the Caldwell List *(Continued from page 11)*

I also had a hard time finding C51-"The Scarecrow" in Cetus. O'Meara states that C51 is "the most challenging object to see in the Caldwell Catalog." I have to agree. I found this object by carefully following the star-hopping suggestions in the O'Meara book, then doing them again, and then doing them again. Only on the third try was I certain that I was looking directly at the correct field. Scope tapping and heavy use of averted vision finally made this object appear.

In the category of the underwhelming, I would have to include C24 also known as Perseus A (NGC 1275) which I described at the time as: "You have got to be kidding me. This is so subtle as to be almost imperceptible. Faint, dim, small patch". Also in the underwhelming category is C37 (NGC 6885) which I saw as a very non-descript open cluster in Vulpecula.

Finally, my favorites. Besides all of the Planetary Nebulas (an appreciation I acquired from Matt Vartanian), one of my favorites had to be C32 (NGC 4631)-a big barred spiral galaxy in Canes Venatici. Maybe this is a favorite because I saw it for the first time on one of those rare Oregon June nights where I was observing at Salmonberry with Mike Sutherland and others. That night it was still, very dark and warm enough to wear shorts well after midnight.

My other favorite had to be the Great Sculptor Galaxy -C65 (NGC 253). I know this object must be old hat to the old timers, but try imagine how you felt the first time you saw this galaxy. I won't forget mine. It was late at night, and I was on my knees in the gravel at Larch Mountain. As my scope descended into the tops of the trees I saw this BIG galaxy for the first time. What a sight!

All told, I commenced work on this program as I was finishing the Messier program: March 28, 2003. I finished the program in the morning twilight of August 13, 2004 (4:05 a.m.) at OSP 2004. There I saw C67 (NGC 1097) in Fornax on a wonderful morning with a beautiful waxing crescent moon and with Venus rising. I finished that morning with 70 objects observed.

Conclusion

I urge everyone to take a run at this list. I bagged the 70 objects needed for the Silver Certificate by travelling no further south than Indian Trail Spring and Marieth Astronomy Park. This list is a great one to do right after the Messier program because there are realistically only 70 or so objects you can see from our area. The objects are more challenging than the Messier program. You can use this program to develop your observing skills for tougher projects like the Herschel list.

As an added benefit, 45 of the 70 objects I observed in the Caldwell program are also listed in the Herschel I program!

Clear skies!

The Astronomical League website, http://www.astroleague.org/al/obsclubs/caldwell/cldwl.html.

O'Meara, Stephen James, Deep-Sky Companions: The Caldwell Objects, Sky Publishing Corporation-Cambridge University Press (2002).

The Astronomical League website, http://www.astroleague.org/al/obsclubs/caldwell/cldwwn.html.

It may just be my increasingly middle-aged eyes.

O'Meara at page 202.

RCA Photo Gallery

M104
Shot using an Astro-Physics 130F6 scope and an ST10XE CCD camera.

Terry Johnson

IC1396
Shot using an Astro-Physics 130F6 scope and an ST10XE CCD camera.

Terry Johnson

ASTROPHYSICS / COSMOLOGY SIG

Date/Time: Thursday, March 17, 7 PM.

March Astrophysics/Cosmology SIG's speaker, Lamont Brock, will give an update on the Cassini-Huygens NASA mission. Lamont will share recent discoveries such as the cyrogenic volcanic eruption of frozen water ice on Titan and discuss the other moons of Saturn.

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

Contact: Bob McGown (503-244-0078)

or Dareth Murray, (503-957-4499) for more information.

We are looking for speakers to lead a discussion. What is your favorite topic in Astrophysics or Cosmology? Let's talk about it! Call Bob at 503-244-0078 or email him: bobmcgown@comcast.net

Telescope Workshop

Date/Time: Saturday, March 26, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

Contact: John DeLacy <johncdelacy@comcast.net> for more information

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

March 2005

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		

March 2005

Mar 7	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
Mar 11-13	Fri-Sun	Messier Marathon!	Kah-Nee-Ta	
Mar 19	Sat	Vernal Equinox Celebration	OMSI East Parking Lot	
Mar 21	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Mar 24	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm
Mar 26	Sat	Telescope Workshop	Swan Island	10am—3pm

April 2005

Apr 4	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
Apr 8-9	Fri-Sat	Star Party!	Camp Hancock	
Apr 18	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Apr 21	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The Rosette Gazette

Volume 17, Issue 4 Newsletter of the Rose City Astronomers April, 2005

April 2005 RCA General Meeting

The April general meeting of the RCA will again be presenting a dozen of the top science students from Oregon Episcopal School and their astronomy projects.

A variety of projects are represented such as studying radio galaxies, comparing varying magnitudes of eclipsing binary stars, calculating the light curve for a hot Orion variable, tracking sunspots visually and with SOHO magnetogram data, and studies on comets Machholtz and Tempel 1 9P. Two teams of students have also analyzed the spectra of red giant variables taken with the Coude Feed Spectroscope at Kitt Peak.

OES science students have won national recognition including patents, published papers, and prestigious awards in the Intel Science Talent Search, the International Science and Engineering Fair, and a Rhodes Scholarship. The students will have their project display boards and time will be allowed for club members to examine the project details. Please join the RCA, with family members, in welcoming and sharing with these students, and hear how they obtained observation time on the Lowell Observatory Telescope, the Pine Mountain Observatory, and the Kitt Peak Coude Feed Spectroscope.

Everyone is Welcome!
Monday April 18
Social Gathering: 7 p.m.
Meeting Begins: 7:30 p.m.
Location: OMSI Auditorium

In This Issue:

Hubble Deep Field above courtesy R. Williams (STScI), the Hubble Deep Field Team and NASA.

Moon photos below courtesy David Haworth

Deadline for submission of articles, ads, and photos for the Gazette is the 20th of each month.

Last Quarter Moon	New Moon	First Quarter Moon	Full Moon
April 1, 4:51 PM. PST	April 8, 1:35 PM PDT	April 16, 7:38 AM. PDT	April 24, 3:09 AM. PDT

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SIG Director	Margaret McCrea	(503) 232-7636	mmcrea@nwlink.com
Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.org

RCA

MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is reduced rate subscriptions to Sky & Telescope and Astronomy magazines. Sky & Telescope Magazine is $32.95 for one year. Astronomy magazine is $29 for one year or $55 for two years. For more information go to larry's web page:

larrygodsey.home.att.net/magazines

Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings.

Please Note: Allow two months for your subscription to be renewed.

Sky & Telescope Store Discount

RCA members who subscribe to *Sky & Telescope* are entitled to a 10% discount at the *Sky & Telescope* online store at: *http://skyandtelescope.com/shopsky* To get your discount, enter Rose City Astronomers when prompted for your club name during checkout at the *Sky & Telescope* online store.

President's Message

By Carol Huston
April 2005

Do you know of all of the wonderful astronomy resources and places to visit that we have right here in our own neighborhood? Besides having the Rose City Astronomers and OMSI where we can pursue our hobby, there are several other nearby facilities that cater to astronomical interests. I'd like to review with you where some of these are and perhaps spark an outing for you and your family.

The Haggart Observatory is in a volunteer-operated observatory at Clackamas Community College in Oregon City. The observatory features a 24" Dobsonian telescope built by RCA member Steve Swayze, as well as other Dobsonians and refractors. Observatory volunteers provide viewing for the general public throughout the year on clear Saturday nights and on other nights by arrangement. You can check their web site for further information about their programs at http://depts.clackamas.edu/haggart/.

Mt. Hood Community College (MHCC) has a planetarium that operates as they have volunteers available. They hold monthly planetarium programs January through August at 7:30 PM every second Monday – admission fee is $1. There is also a 6" solar telescope in an observatory on the campus grounds. Several RCA members sponsor and/or give presentations and star parties for this site. Call 504-691-7297 for information on upcoming programs or check out their web site at http://www.starstuff.com/stars.htm.

The Pine Mountain Observatory is located about 26 miles southeast of Bend in Central Oregon. The observatory features three Cassegrain telescopes (15", 24", and 32") that are used for public viewing as well as for research by the University of Oregon. Programs include presentations and sky tours using their various instruments. Amateur astronomers are welcome to bring their own telescopes and binoculars – and electrical power is available. Overnight visits and group programs are available – call ahead of time to arrange for these. There is a no-fee primitive Forest Service Public Campground on site available on a first-come first-served basis. For more complete information, visit their web site at http://pmo-sun.uoregon.edu/.

(Continued on page 13)

C a m p H a n c o c k
M a y 6 t h – 8 t h

Camp Hancock is always a great weekend outing for RCA and we're going twice this spring. As usual they have asked us not to enter the campgrounds before 3pm on Friday.

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. For maps, pictures, and more info go to the OMSI Hancock web site. Camp Hancock is NOT a resort hotel; it is a rustic kid's camp with 16 A-frame 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. You will be sharing the bunkhouse with others in our group.

Lodging:

The bunkhouses are not reserved except by prior arrangement for medical necessity. Bring your own warm sleeping bag (it will be cold at night) and whatever else you need. Please inform Larry Godsey at larrygodsey@att.net or 503-675-5217, as soon as possible if you have special diet needs or have medical issues. One of the cabins will be set aside as a "ladies only" bunkhouse and one as a "men only" bunkhouse. The remaining bunkhouses are first-come, first served and you will be sharing with others. There is a limited area for tents, RVs and trailers. We have usually been able to provide limited electricity to most of the RVs and trailers, but bring your own power cord, and be prepared to be self sufficient in case there is not enough power available.

Meals:

Camp Hancock offers breakfast, sack lunches (Saturday and Sunday), and dinner (Friday and Saturday). The meals are served family style and everyone is expected to help with setting up, clearing the tables and doing dishes.

Breakfast is served at 9am Saturday and Sunday, with fixings put out for making a sack lunch at 10am both days. Dinner will be at 6pm on both Friday and Saturday.

Everything must be paid for with your registration before April 30th. Meals must be preordered and can NOT be purchased on-site. There are no refunds after April 30th.

Breakfast - 9am - is $4.50 per person per day (Saturday & Sunday)

Sack Lunch - 10am - is $3.50 per person per day (Saturday & Sunday)

Dinner - 6pm - is $5.00 per person per day (Friday & Saturday)

RVs, trailers and tents are $8 per night per unit, not per person.

Bunks in the A-frame bunkhouses are $14 per person per night.

Registration:

Mail-in registration and payment deadline is one week before the outings and there will be NO REFUNDS AFTER that date. We will cut off registration earlier if we reach capacity of 100 people. You are not registered until a check is received!

More Information:

There is more information on the web, including an order form you can fill out on-screen. The information, including pictures, downloadable Camp Hancock information, Clarno Fossil Bed information, driving maps and instructions, etc. will also be found on the web.

Go to http://larrygodsey.home.att.net/hancock for complete information and registration forms.

Rose City Astronomers 'Downtowner's' Lunch

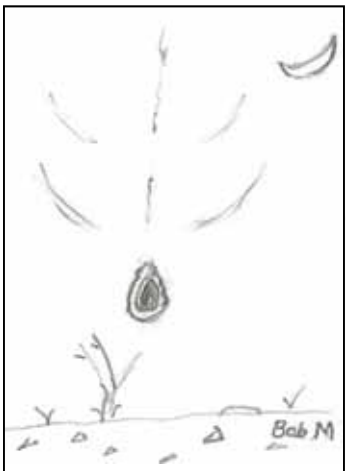
Join us on the first Friday of each month for lunch at the Great China Seafood restaurant (Holidays and such may push us to the second Friday of some months, check the calendar at http://www.rca-omsi.org).
Cost is $6.50 for all-you-can-eat Chinese Buffet Lunch.
Great China Seafood restaurant
334 N.W. Davis, Upstairs on the 2nd floor
Great conversation and buffet lunch.
For more information contact: Margaret McCrea at mmcrea@nwlink.com

Cosmic Fireworks - Pacific Fireball of 2005

By Bob McGown

It was a better than average night for observing, as about 60 members of the Rose City Astronomers gathered on a hill six miles east of the Kah-Nee-Ta resort in the Oregon desert. Every year we get permission from tribal authorities to hold a special Messier Marathon amateur astronomy event in the early spring.

A small group of us were observing, about 7:44 p.m., photographing the AV- 2 lunar ring around Moon and checking out possible super novae candidates, when I noticed a point of light about 10 degrees above the Moon and to the left. Before we saw the fireball, we had been observing Mercury, which had just set. We were standing around Bob Hern's scope discussing supernovae when the fireball appeared to descend slowly from 40 degrees above the horizon. It got brighter and brighter until I could see a bright green nucleus, shimmering florescent green with plasma like yellow cloud. The outer yellow envelope may have made the fireball look green instead of blue. Dareth Murray gave a shout to alert everyone and continued to watch as it plunged down past the Moon. It became bigger and brighter, glowing and pulsating. It had almost no "tail" behind it and I watched it as it disappeared over the horizon. Because of the lack of a tail, I guessed that it had a latitudinal component to the trajectory. Immediately after it disappeared, I saw a very bright light, almost like sheet lightening. It seemed to come in about three "waves". Long after it was gone, I could still see that unearthly green object and visualized it creating a remake of the 1908 Tunguska event in the Oregon coast range nearby knocking down 100 square kilometers of trees.



Pacific fireball/bolide sighting at Kah-Nee-Ta 2005

There was an undulating plasma-like cloud as if the meteor was broken up and was possibly a group of smaller meteors within the nucleus. There was an inner green pod-like shape like a teardrop, with a undulating squared-off bottom nearly the width of the thin crescent moon, setting on its back. The fireball/bolide of March 12, 2005 descended Earthward relatively slowly like it had a very flat trajectory. It was easy to compare the object against the silver of the crescent Moon since the meteor passed within about 10 degrees south of it. There was no dew in the desert sky to limit the magnitude. There was a slight aurora glow in the northern horizon at the time. The western horizon had 5.5-6th magnitude stars down to the horizon within one degree, with almost no light pollution. Overhead the limiting magnitude stars were 6.2-6.4 in Ursa Minor.

As the meteor came in there was a crescent-shaped cloud-like structure that followed about 6-10 degrees behind the meteor, about ¾ second or so behind. Possibly the KNT transparent horizon was above the actual horizon by about 3 degrees or so and may have acted as a large occulting bar allowing us to see the shock wave structure. However, I believe other reports thought the uniform shock waves were multiple meteors. After the KNT fireball/ bolide passed below the horizon, immediately following it was a wide shock front that was about 5-6 degrees either side from the meteor. The first shock wave, although it was behind the meteor, seemed to travel faster than the meteor itself, at low altitude. The compressional shock wave large-scale structure looked like sheet lighting except not as bright. I had seen the lenticular shock front of an F-14 Tom Cat. Perhaps the shock fronts were a sound barrier breaking wave. Immediately behind the meteor there was a second shock save that passed about 3 degrees behind the first shock wave about 5-6 degrees on each side of the meteor. I made a sequence drawing of the event. As each compression wave went by there was an amazing interference wave that caused an intermediate atmospheric-like shock wave that was independently confirmed by Chuck Dethloff. Not counting the interference we observed 6 shock waves, two in pairs ¾ second apart, three on each side of the KNT bolide and two flashes with one paired anti wave. There even seemed to have a charged particle glow that lasted up to 3-4 seconds after the bolide disappeared below the horizon. We listened for sounds immediately after it disappeared below the horizon, but didn't hear anything.

The bolide, a meteor that is nearly as bright as the full moon and ends in an explosion, was about at -8 magnitude overall surface magnitude as judged by seasoned observer Chuck Dethloff and I. As an integrated magnitude it would have approached a three-quarter gibbous Moon since the full Moon is about -13 magnitude. It would have appeared as a "normal" fireball if it weren't for the three shock waves that followed. The fireball/bolide seemed to descent slower than a regular meteor, more like a Roman candle gone astray, as described by RCA member Scott Turner. I saw a glowing plasma-like cloud around the undulating green core. The meteor core was a fluorescent green. Because of its slow descent, Chuck Dethloff and I first thought it was space debris, possibly because of the complex shockwave events that followed its disappearance over the horizon.

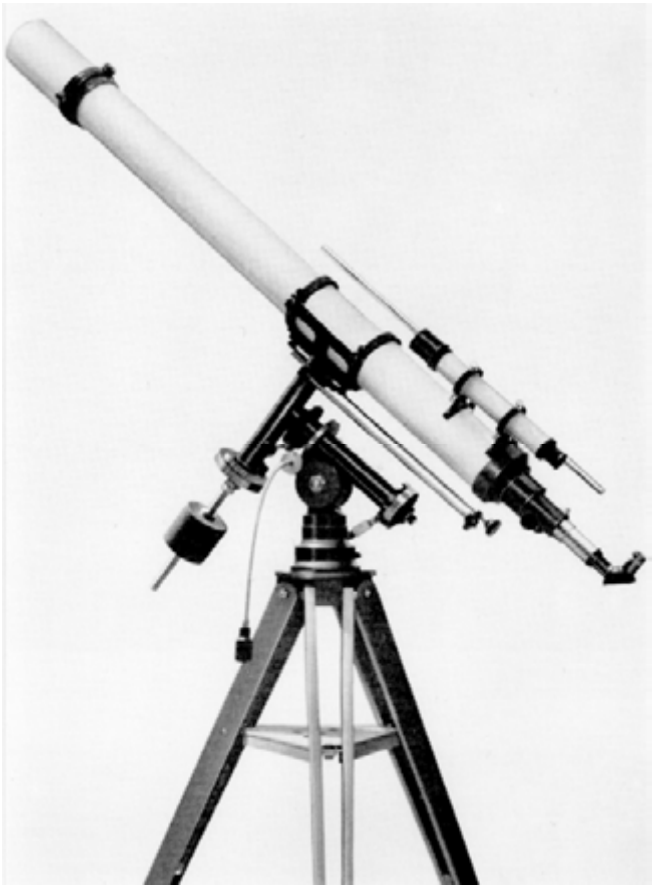
(Continued on page 7)

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 6

By John W. Siple

Unitron's impressive Model #152 4" f/15 equatorial refractor was first advertised in *Sky & Telescope* magazine in May 1953, where the cost was $785.00. This instrument has kept pace with inflation as a function of time; in 1972 the new list price stood at $1273, in the year 1982 it was $1735, and by 1996 the remaining inventory had soared to $4316. The #152, a Nihon Seiko Kenkyusho, Ltd. export from Tokyo, Japan, is no longer in production. In Europe and Australia the #152 was sold as Polarex Model #132. It performs like a finely-tuned watch, and the classic German equatorial styling, mindful of the older superior Zeiss, has a strong appeal. Many 4" Unitron refractors grace dens or living rooms as star attractions, obviously meant to be enjoyed as masterpieces of mechanical precision when not pointed at the night sky. In the world of astronomical collectibles these great monuments to past engineering practices rank among the most highly sought after and cherished items.

For the uninitiated they are BIG telescopes; the Model #152 dwarfs any 3" refractor (and most other 4" brands). This is exemplified by a ground-to-cradle height of 5 ½ feet and a hefty 100 lbs. when set up in observing position. The telescope package includes a full complement of accessories and observing hardware; the large refractor is designed to satisfy even the most discriminating amateur astronomer. A unique built-in, battery-operated shelf illuminator prevents dropping accessories in the dark, and the large engraved setting circles make finding objects a breeze (or the user can gaze through the 10X42mm finderscope). The inner objective cell holding the air-spaced achromatic lens is plainly marked in white lettering with the words "Unitron" (or "Polarex"), the aperture (commonly 102mm), and the focal length (1500mm). According to noted telescope expert Rodger W. Gordon of Nazareth, Pennsylvania, "Unitron's 'coup' was copying the Zeiss 'E' Fraunhofer objective." Older objectives from the 1950s stamped 100mm and those from the 1980s with a greenish multi-coating perform especially well. Unitron did not put serial numbers on their telescopes, so dating, if documentation or a bill of sale is unavailable, must be done by evaluation of mechanical features (e.g. the color of the setting circles, whether or not the large spur gear has circumferential [radial] holes, if the lens cell uses 120º "collimation ears," etc.). Seven eyepieces in 6, 7, 9, 12.5, 18, 25, and 40mm focal lengths giving a magnification range of 38X to 250X were often standard issue. Two high power Orthoscopic oculars (5mm for 300X and a 4mm to gain 375X) for detailed lunar, double star, and planetary viewing could be purchased. The potential customer was given the choice between a star diagonal + erecting prism combination or Unihex rotary eyepiece selector. Three custom sturdy wooden storage cases hold respectively the massive, cast white-metal (zinc alloy) equatorial mounting, optical tube assembly, and tripod legs. *(Continued on Page 6)*



Unitron Model #152/Polarex #132. Current secondary market value $2400-2700 for excellent or better condition scopes, an electric RA motor drive riding on a small side shelf (Model #152-C) adds $350-400. Model #155-C Photo Equatorials are worth $3800-4100. Solar projection apparatus is standard equipment on all instruments.

Unitron's 4" f/15 Equatorial Refractor customized by the author (circa 1958 mounting with mid-1950's optical tube, brass counterweights). Optical figuring is perfect. The large optional Super UNI-HEX rotary eyepiece selector brings $375 alone, while the special 58mm o.d 60mm Kellner eyepiece realizes $160-170.

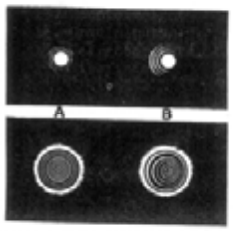
A SAMPLING OF TELESCOPES *(continued from page 5)*

Shown below is the parts diagram (taken from the user manual) of the Polarex Model #132. Note that the polar axis is set up for an observer in the Southern Hemisphere (for Rose City Astronomers in Oregon and other amateurs in northern latitudes the polar axis points near Polaris, rather than the South Celestial Pole). All other aspects are applicable for the American brand Model #152 equatorial refractor (Unitron Product No. 16519). A stable design with tight tolerances, it is possible to interchange components on different units spaced decades apart.

(Continued on Page 7)

THE USE AND CARE OF YOUR TELESCOPE

Extra Focal Rings

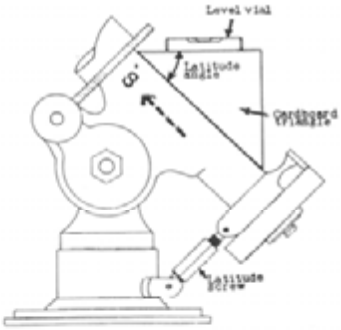


A. Correctly aligned
B. Out of alignment

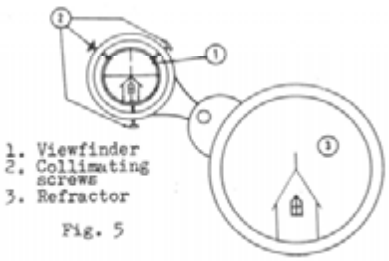
Fig. 1: POLAREX Equatorial Refractor

1. Tripod legs
2. Tripod leg bolt
3. Declination fast motion clamp rod
4. Declination slow motion control rod
5. Declination axis
6. Cradle
7. Right ascension fast motion clamp
8. Auxiliary right ascension control rod
9. Polar axis
10. Right ascension control knob
11. Flexible cable
12. Counterweight rod
13. Counterweight
14. Cradle nuts
15. Refractor tube
16. Viewfinder
17. Viewfinder collimating screws
18. Latitude screw
19. Declination circle
20. Right ascension or hour circle
21. Shelf light (4" models only)
22. Tripod level vials (4" only)
23. Trunnion nuts
24. Cradle clamp nuts
25. Latitude screw retaining bolt
26. Lock screw - declination circle
27. Azimuth locking screw (not visible in Fig.1)
28. Sun screen brackets
29. Vernier for declination circle

Setting the Polar Axis



Aligning the finder



1. Viewfinder
2. Collimating screws
3. Refractor

Fig. 5

A SAMPLING OF TELESCOPES *(continued from page 6)*

This medium aperture refractor is especially suited to the task of observing galactic star clusters. Messier 41 in Canis Major, found only 4 degrees southeast of Sirius, is a dazzling array of fifty 7^{th}-12^{th} magnitude stars, and the cluster's "butterfly" star pattern fills the field of view of a Tele Vue 24mm Wide Field eyepiece. Farther to the east in Puppis lies the magnificent globular-shaped open cluster M46, elegantly resolved into a mass of more than a hundred 11^{th}-14^{th} magnitude suns. The embedded planetary nebula NGC 2438 is a faint ghostly glow in the NE quadrant of the cluster. Much brighter is the nearby sparkler M47, a coarse lozenge-shaped aggregation of stars centrally dominated by the double star Struve ∑1121 (mags. 7.9 & 7.9; sep. 7.4"; p.a. 305°), which is clearly resolved in the 4" refractor (∑1120, the cluster's brightest star, mags. 5.7 & 9.6; sep. 19.6"; p.a. 36°, lies on the W side). A theoretical resolving power of 1.1 seconds of arc is a quantum leap over that of smaller 2.4" and 3" scopes, since the database for observable, resolvable double stars is expanded greatly, both in depth and variety. A relatively easy double star is beautiful Gamma Leonis or Algieba in the constellation Leo, consisting of a pair of light orange and pale greenish-yellow suns (mags. 2.2 & 3.5; sep. 4.4"; p.a. 127°). A much tougher target is the triple star system Zeta Cancri (mags. 5.6, 6.0, & 6.2; sep. 0.8", 5.7"; p.a. 72°, 88°—all a distinct yellow in color). The refractor, under normal seeing conditions, usually shows only the wider pair, but in steady skies the close 0.8" primary looks like a "goose-egg." Unitron 4" equatorial refractors were sold for over four decades, and today countless units are in the hands of serious collectors. However, have you checked your basement or attic lately?

Cosmic Fireworks *(Continued from page 4)*

Larry Deal, an active RCA observer, averted his eyes as to not "ruin his night vision", having been repeatedly conditioned to look away from the highway as cars passed. Immediately afterward, the tribal police came to check out the situation. They thought someone had let off some fireworks! We soon found out from Scott Turner, an RCA member, who talked to an Oregon State Policeman that reports were coming in from all around the state.

After talking about it with some of the people at the observing site, I put a call in to my friend Dick Pugh, with the Cascade Meteor Laboratory, to report the event and the complex shock wave that happened after the meteor disappeared. Bob Hern, a friend from MIT, discussed with me the complex shock wave structure that was created. Steve Jaynes, an RCA member, and I independently measured the descent at 285 deg off of true north. The descent seemed to drift one degree to the south if at all.

Tom Billings on the Lunar Base Research Team called and told me that there was a news media trailer on TV that said a bolide fell off the Oregon coast. I called the Coast Guard and triangulated the space fall with amateur astronomer David Sandage who got a rough triangulation from Astoria, Oregon. We were also looking for waves that were abnormally high on the Oregon coast. The meteor went over a boat 109 miles off shore. There were many reports of emergency flares going off. With a possibly angular descent trajectory, the meteor could have ablated to a low speed, although the charged particle rebound and shock wave direction was apparent off of the ocean surface. Tom Hanna, a member of Oregon L-5, suggested it could have been a Russian launched Parus #96 data relay satellite on a Kosmos 3M launcher in late January 05. The flight path was a 60 to 65 degree elliptical orbit. It's possible what was viewed and reported as a meteor could in fact be remains from either the launcher, or the satellite itself. Deoribiting satellites are presently being traced by NORAD and other agencies.

I e-mailed Dr. Olsen, University of Alaska Fairbanks, to see if it had possibly been detected by the Infra Sound Array. I also contacted Joseph Long, a grad student at OSU Oceanic and Atmospheric Lab, about downloading NOAA data. After downloading the data I found it only has significant wave height (average of the highest one third waves in a 20-minute time series) and this typically only works with a wave spectrum that is generated from a 20-minute time series (Fourier Transform.) I am in the process of data mining for more information.

The OSP Ochoco space debris impact was a similar type of event. This happened when an object that looked like a deorbiting rocket fuselage came down over the Oregon desert in 1999. Another impact in Oregon was the fireball of 1985, when a meteorite landed in the Mt Hood National forest but was never found. The 2005 fireball, shared by those who were lucky enough to observe it, was truly a-once-in-a-lifetime experience!

Observing Site Committee

To lead and coordinate efforts of the Rose City Astronomers (RCA) in securing and managing a variety of observing sites for private use by members, and for community outreach and special events organized by the RCA.

Please Check http://nemoworld.com/RCA/sitehome.htm to confirm and for more information.

Or Contact: David Nemo <david6366@msn.com>

THE OBSERVER'S CORNER

Howard Banich

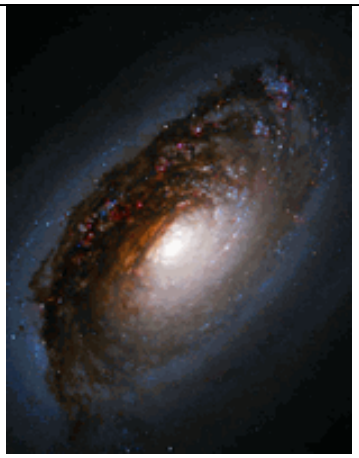
If you like to observe galaxies, April is your time of year. Leo is high in the south, Virgo is just to its east, Coma Berenices, Ursa Major, Corvus are well up – heck, just about all the constellations in the sky right now are loaded with excellent galaxies. But that's not all that's up, so what follows is a tiny sampling of what to look for in a dark, moonless April sky.

A few wonderful objects just aren't observed often enough – at least by me. Most of that has to do with the typical weather we have this time of year, but given that the weather pattern has been incredibly dry lately we just may have more chances to see some of the Spring sky's wonders this year.

http://adrozd.free.fr/m64.html

Let's start with M64, the Blackeye Galaxy in Coma Berenices. In a dark sky it's relatively easy to find at almost exactly one degree northeast of a 4.9 magnitude star, 35 Comae Berenices. It's also nearly equidistant from NGC 4565 and M53, two objects we'll come to later…

But back to the Blackeye Galaxy, an object obviously deserving of its nickname. A large shiner of a dark dust lane is superimposed near the bright central region, and of course it all looks more impressive with increasing aperture. You may need a 10" or larger scope to see at all. Use magnifications above 150x and higher for your best chance.



http://www.skyimagelab.com/black-eye-galaxy.html

The bright parts of this interesting galaxy are intriguingly without detail, as if the stars, gas, dust and nebulae that make it up are blended like a smoothie. This effect shows up even in the highest resolution images, and although an analogy, it actually makes physical sense because M64 is made up of two overlapping galaxies that are in the process of merging, with two distinct populations of stars rotating in opposite directions. It really is something like a blender. There is a lot of star formation going on in the dust lane however, as shown in this very nice Hubble space telescope close up.

M64 is approximately 24 million light years distant and is gravitationally associated with M94 in Canes Venatici, nearly 20 degrees due north. Ponder the far reach of gravity with that view in mind.

M64, merging spiral galaxies, mag. 9.4, SB 11.8. RA 12 hours, 56 minutes, Declination +21 degrees, 41 minutes. SA2000 chart 7, UA 2nd edition page 71.

Four degrees to the southeast is M53. This is a lovely globular cluster that is probably visited mostly by Messier certificate observers and Messier Marathoners rather than by those who want to see it on its own merits. However, it's rather unique in that it has a neighbor globular cluster, NGC 5053, just a degree to the southeast. A photo of both in Burnham's Celestial Handbook, page 674, got me excited about this pairing years ago, but it masks the fact that 5053 is very, very much fainter than M53. In a dark, transparent sky 5053 can be seen through an 8" as a faint hazy patch, and in a larger scope it resembles a faint open cluster much more than a globular cluster. Still, you can see it and M53 in the same wide angle, low power field of view. Find Alpha 42 Comae Berenices then go less than one degree northeast to find this interesting pair.

(Continued on page 9)

The Observers Corner *(Continued from page 8)*

Interestingly, NGC 5053 is about 49,000 light years away while M53 is about 65,000 light years away. 5053 has a total luminosity of about 21,000 suns while M53 is shines with the total output of 330,000 suns – more than 10 times as much, explaining the extreme difference in their visual appearance.

http://www.h2.dion.ne.jp/~hoshist/2004-2-21-M53-NGC5053.html

M53, globular cluster. Mag. 7.7, RA 13 hours, 13 minutes, Declination +18 degrees, 10 minutes. SA 2000 chart 7, UA 2nd edition page 71.

Now quickly back to M64: five degrees to the northwest of M64 is NGC 4565, the finest edge on galaxy we can see other than the Milky Way. Look at this once in a scope 12" or larger and it will become one of your favorite observing memories, and you'll probably wonder how Messier missed putting it in his catalog.

This is one of the few galaxies that looks very much like its photos in scopes 10 inches and larger – you'll recognize it as soon as it comes into the field of view. This is a long, sharply defined edge on galaxy that tapers evenly toward both ends. It sports a bright core that's split by a dust lane, but not evenly because we're not seeing 4565 perfectly edge on. The smaller portion of the core may be a challenge to see. Even so 4565 presents a picture of symmetry that rivals Saturn.

Photo by George Greany
http://www.astroimages.com/ngc4565.htm

A large scope can give a view that will knock your socks off – nearly everything that shows in a good amateur ccd image can be seen in a scope 20" and larger in dark, transparent skies.

End to end NGC 4565 spans about 125,000 light years and is about 31 million light years distant. It has a luminosity of approximately 11 billion suns.

NGC 4565, edge on spiral galaxy, mag. 10.4, SB 13.1. RA 12 hours, 36 minutes, Declination +25 degrees, 59 minutes. SA2000 chart 7, UA 2nd edition page 72.

(Continued on page 10)

The Observers Corner *(Continued from page 9)*

Some side trips to consider:

If you'd like to take a trip to the fainter side of things, and about 400 million light years distant, the Coma Galaxy Cluster is 6 degrees due north of M64. The two brightest galaxies in this cluster are NGC 4889 and 4874, and they're surrounded by flocks of smaller and fainter galaxies. This group is best appreciated with scopes 16 inches and larger in dark, transparent skies, but don't let that stop you from looking if you have a smaller scope or less than ideal observing conditions. You may surprise yourself with a glimpse of 4889 and 4874, and maybe a few more of the brightest members. Seeing anything 400 million light years away is worth a try.

http://www.solstation.com/x-objects/coma-sc.htm
Coma Galaxy Cluster, data for NGC 4889: Elliptical galaxy, mag 12.5, SB 13.1. RA 13 hours, +27 degrees 58 minutes. SA2000 chart 7, UA 2nd edition, page 71.

http://www.mikefleenor.com/images/m3/m3LRGB.htm

For something brighter to look at, move your scope about 10 degrees due west of the Coma Cluster to find M3, one of the finest globular clusters in the northern sky. M3 shines with a combined magnitude of 6.3 and has a pleasing round shape with a symmetrical distribution of stars. This is a wonderful sight in any scope, and even small scopes will show a lovely granular halo of stars. M3 is about 27,000 light years away and is very approximately 130 light years in diameter. About 45,000 stars are compressed into this space.

M3, globular cluster, mag. 6.3. RA 13 hours 42 minutes, +28 degrees 22 minutes. SA2000 chart 7, UA 2nd edition page 71.

The Virgo Galaxy Cluster (Please see image on Page 11) lies to the south of Coma Berenices, and is a realm of its own. Thick with galaxies of all shapes and brightness' it's easy to spend an entire evening in this fascinating area. Be well prepared with a detailed star chart even if you have a goto scope, because you'll probably come across many more galaxies than you'll expect, and much of the fun here is to make sure you know exactly which galaxy you're looking at and what its neighbors are. An approximate distance to the Virgo Cluster is 45 million years, and it's so massive that our Local Group of galaxies, including the Milky Way, is gravitationally influenced by it.

This is only a small start to a few of the best sights in the Spring sky. There's much, much more to see and we'll look up a few more of the best next month.

(Continued on page 11)

The Observers Corner *(Continued from page 10)*

http://www.ne.jp/asahi/stellar/scenes/object_e/vir_wide.htm (check out this url for a more detailed look at this great photo.) Virgo Galaxy Cluster, data for M84: Elliptical galaxy, 10.1, SB 11.9. RA 12 hours 25 minutes, Declination +12 minutes 53 minutes. SA2000 charts 7, 13, 14 and B, UA 2nd edition pages 90, 91, 111 and A13, A15.

Visitors to the Oregon Museum of Science and Industry will be star-struck on the evening of April 16 as they peer into and learn about the cosmos during the museum's Astronomy Day 2005 Star Party scheduled to begin at 7:30 p.m. Astronomy Day is a worldwide event designed to promote public awareness and interest in astronomy and space science. During OMSI's Star Party, information about the outer planets, constellations and the universe in general will be shared.

The Star Party, hosted by OMSI, Rose City Astronomers and Vancouver Sidewalk Astronomers, will take place in OMSI's east parking lot, located at 1945 SE Water Ave. Beginners to experts of all ages will have an opportunity to view the stars and other objects through a variety of telescopes. Viewing highlights includes the Moon, Orion Nebula, Jupiter and Saturn. OMSI's Kendall Planetarium Manager Jim Todd will present informal talks about these and other celestial events in the spring sky.

The Star Party is free and open to the public. Visitors should call (503) 797-4610 on April 16 after 3:00 p.m. to hear if the party has been cancelled because of poor weather.

BOARD MEETING MINUTES

March 7, 2005
OMSI Classroom 1
Ken Cone

President Carol Huston called the meeting to order at 7 pm.

Board members present: Peter Abrahams, Ken Cone, Larry Deal, Patton Echols, Ed Epp, Dale Fenske, Ken Hose, Carol Huston, Jan Keiski , Bob McGown, Dareth Murray, David Nemo, Jim Reilly, Greg Rohde, Sameer Ruiwale, Matt Vartanian

Guests: Lee Olsen, Facilitator for April's Observing Site Committee discussion by the RCA Board.

Board Reports:

- Secretary's Report – Ken Cone: Quorum (12) met with 16 voting members present.
- Treasurer's Report – Ed Epp in Ginny's absence: Cash in accounts $13,963.02. Ed provided a new income and expense report. Ginny and Ed will provide this new report each month. Ed reminded the board to start thinking about budgets for next year.
- VP Programming – Carol and Bob for Matt Brewster: March will be Bernie Taylor on Biological time. Don Brownlee UW on Stardust.
- VP Observing – Matt Vartanian: MM at Kah Nee Ta this weekend has reserved 50 rooms for the weekend. Saturday, 3/19, is the OMSI Vernal Equinox public star party in the East parking lot.
- VP Community Affairs: no report
- VP Membership – Ken Hose: 10 new members and 5 renewals from Feb. meeting for a total of $486. There are 297 member families. Dale will send membership roster to AL.
- New Member Advisor – Jim Reilly: Orientation for 6 new members in Feb. Will have another orientation star party in couple more months. Look for an announcement via email.
- Media Director – Patton: no report
- Sales – Sameer Ruiwale: February sales totaled $342.
- Book Library – Jan Keiski: RE Library bucks: Treasurer will write checks to sales to cover library bucks. Bruce Mackay put together an interactive planetarium CD "SUNMOON" that will be in the library.
- Telescope Library – Greg Rohde: RE Missing 12.5 telescope in St Helens, Greg will try to pick before March 26th workshop. Greg Rohde put together in a binder an extensive set of articles from Spatium (www.spatium.com). An excellent read.
- SIGs – no report
- IDA – Bob McGown: There is now an IDA official seal of approval of light fixtures. The seal insures no light comes above the horizon. Developers, contractors, and consumers should be looking for seal in planning their outdoor lighting.
- Magazine Subscriptions – Ken Cone for Larry Godsey: $650.40 in magazine subscriptions for last month.
- Gazette Editor – Larry Deal: no report. Great March issue!! Bob & Dareth took a vacation trip to TX to visit the McDonald Observatory. http://www.as.utexas.edu/mcdonald/mcdonald.html Bob & Dareth are writing up vacation observing articles for the Gazette.
- Webmaster – Dareth Murray: Working on permission/password site for board web site to archive data.
- Alcor/Historian – Dale Fenske: Astronomy Day stuff from AL available. AR: Bob will look into organizing Astronomy day at L&C. They have a new 16" DFM scope.
- OMSI – Carol Huston: no report
- Site Committee Director – David Nemo: no report

Old Business

- DONE AR – Ed Epp: Get with Carol & Ginny to review budget report format.
- DONE AR – Patton: Make media contacts, building list of contacts. This will be an ongoing process.
- DONE AR – Larry: Contact Jim Todd re: Hancock, to organize work party. Larry got together with Jim and it doesn't look at this time that we will need a full work party. Larry will work with Jim and Camp Hancock to provide help in aligning the new piers and setting up the mounts.
- DONE AR -- KenC will set deadline of one week from board meeting for email corrections, then final minutes go to Gazette. Worked fine.
- DONE AR – Peter will craft a motion for next meeting to clarify the proposal to change some of the board positions to non-voting positions in order to stabilize board membership to voting members and to help facilitate volunteers as non-voting members. Follow-up: Patton, Carol and Peter reviewed the issue with respect to RCA Bylaws and found the AR is in violation of the bylaws, so AR was dismissed.
- DONE AR – All Board Members: Review schedule by next meeting and add actions as appropriate.
- DONE AR – Larry: Contact Jim Todd re: Hancock, to organize work party. I got together with Jim and it doesn't look at this time that we will need a full work party. I will work with Jim and Camp Hancock to provide help in aligning the new piers and setting up the mounts.
- Phone Line Report – Patton: Interesting ongoing discussion with a phone line caller.
  Mar 8 through Apr 4: Matt V.
  Apr 5 through May 1: Dale

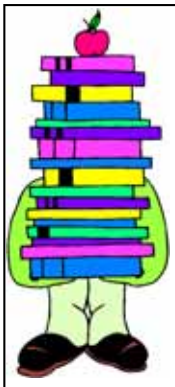
(Continued on page 13)

Board Minutes *(Continued from page 12)*

New Business

- Guest Lee Olsen, Facilitator for the Observing Site Committee Discussion, reviewed her role for the April board meeting and how this would play out for the discussion and decisions to be made.
- Review of Bylaws – Carol: Reviewed sections of the bylaws with the board.
- Articles of Incorporation – and 501c3 organization – Carol: Reviewed what these mean to RCA, including a maintenance document to cover our legal obligations and maintenance. These document will be available on the board web site, but Secretary will hold hard copy versions.

Meeting adjourned at 9:00 pm.



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CD-ROMs 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,

Jan Keiski (jikeiski@comcast.net)
503-539-4566

Visit the RCA library web page at:
http://www.rca-omsi.org/library.htm

ASTROPHYSICS / COSMOLOGY SIG

Date/Time: Thursday, April 21, 7 PM.

Speaker: Bob McGown

Topic: "Complexity & the Universe"

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

Contact: Bob McGown (503-244-0078)

or Dareth Murray, (503-957-4499) for more information.

We are looking for speakers to lead a discussion. What is your favorite topic in Astrophysics or Cosmology? Let's talk about it! Call Bob at 503-244-0078 or email him: bobmcgown@comcast.net

Telescope Workshop

Date/Time: Saturday, April 23, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

Contact: John DeLacy <johncdelacy@comcast.net> for more information

Presidents Message *(Continued from page 2)*

The Goldendale Observatory is located a mile north of Goldendale, Washington. The observatory features a 24.5" Cassegrain reflecting telescope, an 8" dome-mounted Celestron telescope, and six portable telescopes, as well as special camera accessories and a science library. Activities include slide shows, exhibits, films, lectures, demonstrations, and telescope viewing. Arranged in advance, stargazers may reserve the facility for a small fee for their own special observing programs after the public viewing hours. Limited accommodations include an all-purpose room, restrooms, and a small kitchenette. Additional overnight facilities are available nearby. Call or check the web site for day program, evening observing schedules, and directions. http://www.perr.com/gosp.html.

The Sunriver Nature Center Observatory is located Sunriver, about 15 miles south of Bend, Oregon. This observatory features a 12.5" telescope in the dome with two 8" SCTs, a 10" Newtonian, and a 20" Dob. The observatory is open during the day for solar and planetary viewing, plus 9:00 - 11:00 PM every Friday and Saturday night. Overnight accommodations are available nearby. To get specific dates, program scheduling, and for inquiries, check out their web site at http://www.sunrivernaturecenter.org/html/obseratory.html

Big Telescope – Big Universe

Observing on the 82" Otto Struve
By Dareth Murray & Bob McGown

After hearing stories of the clear, dark skies of West Texas, we decided to experience first hand the famous McDonald Observatory on the summit of Mt. Locke, at 6,800 feet. With a lucky search on the Internet, we found the last two spots in the private winter observing group on the 82" Otto Struve classical Cassegrain telescope. This was the second largest telescope in the world when it was built. The high performance 27', 45-ton telescope was completed in 1939.

McDonald Observatory Amphitheatre

McDonald Observatory has an outstanding visitor center with a huge amphitheatre for outdoor summer presentations. The road to the observatory is not like most observatory roads. This one was Texas speed limit all the way!

Picking up our car in the morning after coming into El Paso the night before, we stopped by Hueco Tanks State Park to view the petroglyph masks rock art and the unusual hollows (huecos) in the rocks that fill with water and stay wet year round. We climbed the chain trail to the summit and bouldered around the picturesque rocks. It was a beautiful desert oasis, lush and green in the Texas winter. After an hour we headed down to McDonald Observatory, about 2 hours south. We checked into the Astronomer's Lodge, located directly below the Harlan J. Smith 107" scope. We spent an hour in the amazing gift shop before being called for dinner.

The observing session price included a tour of the observatories and grounds, a fine catered dinner and 3 hours of observing time on the 82". Over the course of the evening Public Affairs Specialist Frank Cianciolo and celestial mechanic David Doss shared the technical complexity of this marvelous equipment along with their expertise on deep sky navigation.

The evening's list of observations on the 82" included:

- M-79
- IC 418 - Spirograph Nebula
- M-42 - Orion Nebula
- NGC 4440 – Planetary Nebula
- NGC 2158 – Open cluster in Gemini
- NGC 2392 – Eskimo Nebula
- Saturn at 1,300 power
- NGC 2903 – Sa-Sb galaxy, edge-on
- and many more…

Sketch of NGC 4440 – Planetary Nebulae

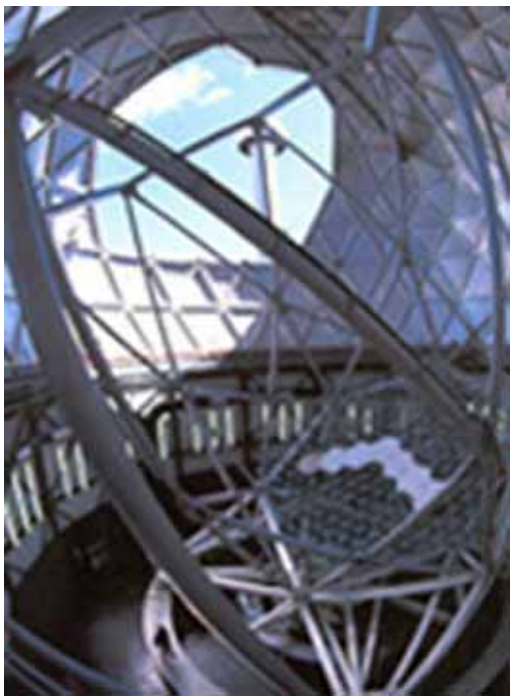
(Continued on page 15)

Big Telescope *(Continued from page 14)*

The objects were stunning at 890 to 1200 power under sub-arc-second seeing. The light from the entire 2.1 meters was focused through the 22mm Takahashi eyepieces. The telescope floor was able to be raised up in two sections to accommodate viewing and instrumentation. The telescope was able to slew rapidly from object to object as the telescope floor was separated from the observer's floor and could be raised independently. We were warned to be careful as the two floors could crush an unwary toe! The heated control room had an under floor raceway and the unused mainframe casing. Now visiting astronomers use their personal laptops so the old computers have been dismantled.

Bob observing on the 82"

During the course of our two days at the Observatory, we were especially interested in the new 11-meter segmented mirror Hobby-Eberly Telescope (HET). The HET was dedicated October 8, 1995 and is operated by a consortium of universities including University of Texas, Penn State, Stanford, and two German universities.



Wide angle HET, new technology telescope

The HET is fixed at 55 degrees and uses a movable secondary mirror that allows it to scan 70% of the sky. The frame of the telescope was built by a bridge maker, the dome was built by a radar dome manufacturer and the segmented mirror is zerodur low expansion glass. This unique design is so successful it allows for a relatively low cost large telescope with sealed up versions to 35-100 meters in diameter which has been proposed for a sister facility in South Africa

An unusual mushroom tower next to the telescope dome houses lasers and equipment to align the 91 mirror segments. Among some of the other research in progress at Mcdonald Observatory is the McDonald Laser Ranging Station (MLRS.) Astronomers bounce the lasers off the Moon to study relativistic effects between the Earth-Moon system and a dozen orbiting satellites.

Among some of the other research projects that the HET is involved in include:

- Measurement of stellar distances and velocities
- Chemical composition and evolution of galaxies, stars, gas and nebulaes
- Searches for planets around stars, dark matter and black holes

When we got up early the next morning to continue our journey to seek the Odessa Meteor Crater and Carlsbad Caverns, we got a prime Texas sunrise. Yes, West Texas can be mighty purdy!

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

April 2005

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

April 2005

Apr 4	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
Apr 8-9	Fri-Sat	Star Party!	Camp Hancock	
Apr 16	Sat	Astronomy Day Celebration	OMSI	7:30pm
Apr 18	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Apr 21	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm
Apr 23	Sat	Telescope Workshop	Swan Island	10am-3pm

May 2005

May 2	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
May 6-7	Fri-Sat	Star Party!	Camp Hancock	
May 16	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
May 19	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 5 Newsletter of the Rose City Astronomers May, 2005

In This Issue:

Hubble Deep Field above courtesy R. Williams (STScI), the Hubble Deep Field Team and NASA.

Moon photos below courtesy David Haworth

MAY RCA GENERAL MEETING
What's Happenin' down at the Subatomic collider?

By Dr. Hans Bichsel

At present, the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory (Long Island NY) is the accelerator producing the highest energy nuclei man-made in this world. Two beams of heavy ions rotate in opposite direction and are accelerated to 0.99999 of the speed of light, then are made to collide at four places in their circular tracks. At each collision intersection a detector is used to observe the products of the collisions.

The collider group at the University of Washington is using the data from the STAR detector trying to understand the processes taking place during the collisions. These collisions create systems with about the same temperature, pressure, and density as the first microsecond of the Big Bang.

Many of the ``signals" from the collisions of gold nuclei suggest that a quark gluon plasma (QGP) has been created in the initial stages of the collision. Moreover, contrary to initial expectations, the medium created in the collisions is found to behave like a nearly perfect low-viscosity liquid rather than a gas. The apparatus and some of the results will be described at the May general meeting of the Rose City Astronomers.

Everyone is Welcome!
Monday May 16
Social Gathering: 7 p.m.
Meeting Begins: 7:30 p.m.
Location: OMSI Auditorium

Deadline for submission of articles, ads, and photos for the Gazette is the 20th of each month.

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
May 8, 1:48 AM PDT	May 16, 1:58 AM. PDT	May 23, 1:20 PM. PDT	May 30, 4:49 AM. PDT

Club Officers			
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VP Observing	Matt Vartanian	(503) 244-5023	matt@vartanian.net
VP Community Affairs	Jeff Sponaugle	(503) 590-5522	jsponaugle@kryptiq.com
VP, Programming	Matt Brewster	(503) 740-2329	m_brewster@juno.com
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Alcor, Historian	Dale Fenske	(503) 256-1840	fenskedf@juno.com
Library Director	Jan Keiski	(503) 539-4566	jikeiski@comcast.net
Telescope Director	Greg Rohde	(503) 629-5475	gfrohde2000@yahoo.com
Observing Site Director	David Nemo	(503) 224-6366	david6366@msn.com
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OSP Liaison	Dareth Murray	(503) 957-4499	darethlee@comcast.net
Camp Hancock Liaison	Glenn Graham	(503) 579-1141	the.grahams@verizon.net
Subscription Director	Larry Godsey	(503) 675-5217	larrygodsey@comcast.net
SIG Director	Margaret McCrea	(503) 232-7636	mmcrea@nwlink.com
Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.org

RCA

MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is reduced rate subscriptions to Sky & Telescope and Astronomy magazines. Sky & Telescope Magazine is $32.95 for one year. Astronomy magazine is $29 for one year or $55 for two years. **For more information go to the RCA web site and click on any of the links for magazines.**

Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings. Please Note: Allow two months for your subscription to be renewed. Sky & Telescope Store Discount.

RCA members who subscribe to Sky & Telescope are entitled to a 10% discount at the Sky & Telescope online store at: http://skyandtelescope.com/shopsky To get your discount, enter Rose City Astronomers when prompted for your club name during checkout at the Sky & Telescope online store.

President's Message

By Carol Huston
May 2005

RCA has begun its star party observing season for the year. The star party schedule was published in the February issue of the Rosette Gazette along with directions to the observing sites. We have already enjoyed successful star parties at KNT in March and Hancock in April, and another Hancock trip has been schedule for the weekend of May 6-8. So far, our public star parties at OMSI have been weathered out, but we have one scheduled for each month for the next several months so we'll get more opportunities to share our views with the public. Now is a good time to do a refresher on how to make your star party experiences fun, comfortable, and considerate for all of the other observers out there. RCA's web site contains several articles that address star parties specifically, and there are several articles in the RCA Member Packet. These articles are also available from the New Member Advisor at the Membership Table at each RCA general meeting.

"An Introduction to Star Parties" gives an overview of star parties in general. "Stargazing Tips" gives pointers on star parties and how to get the most out of them. "Star Party Etiquette" talks about how to set up and maneuver through star parties so that everyone is considerate of all observers at these activities. "Star Party Supplies" talks about how to set yourself up so that you are warm and comfortable so that your star party experience is enhanced.

All of the board members are seasoned observers and can help anyone with their star party questions. If you have any questions about star parties and how to get the most out of them, you can also connect with the New Member Advisor (Jim Reilly) or the VP of Observing (Matt Vartanian).

Planet Parade

May 14, 2005 - 8:30pm - OMSI East Parking Lot

Saturn, Jupiter and the Moon will gather in the evening sky on Saturday May 14, and OMSI, the Rose City Astronomers (RCA) and Vancouver Sidewalk Astronomers are throwing a Star Party that evening, weather permitting. The free event starts at 8:30pm at the OMSI east parking area, located at 1945 SE Water Ave. Members of RCA and VSA will make their telescopes available to anyone who attends, and OMSI Planetarium Manager Jim Todd will present informal talks on the occurrence. From beginners to experts of all ages, visitors will have the opportunity to view the stars and other objects through a variety of telescopes. In addition to seeing the planets Jupiter and Saturn, the Orion Nebula, the Beehive star cluster and other celestial bodies will also be visible. For possible weather cancellation, please call 503.797.4610 after 3:00pm on May 14 for the latest information.

Jim Todd
OMSI Planetarium Manager
Portland, Oregon

ASTROPHYSICS / COSMOLOGY SIG

Date/Time: Thursday, May 19, 7 PM.

Speaker: John Foster

Topic: "Astro Photography "

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

Contact: Bob McGown (503-244-0078)

or Dareth Murray, (503-957-4499) for more information.

We are looking for speakers to lead a discussion. What is your favorite topic in Astrophysics or Cosmology? Let's talk about it! Call Bob at 503-244-0078 or email him: bobmcgown@comcast.net

Telescope Workshop

Date/Time: Saturday, May 21, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

Contact: John DeLacy <johncdelacy@comcast.net> for more information

Rose City Astronomers 'Downtowner's' Lunch

Join us on the first Friday of each month for lunch at the Great China Seafood restaurant (Holidays and such may push us to the second Friday of some months, check the calendar at http://www.rca-omsi.org).
Cost is $6.50 for all-you-can-eat Chinese Buffet Lunch.
Great China Seafood restaurant
334 N.W. Davis, Upstairs on the 2nd floor
Great conversation and buffet lunch.
For more information contact: Margaret McCrea at mmcrea@nwlink.com

Observing Site Committee

To lead and coordinate efforts of the Rose City Astronomers (RCA) in securing and managing a variety of observing sites for private use by members, and for community outreach and special events organized by the RCA.

Please Check http://nemoworld.com/RCA/sitehome.htm to confirm and for more information.
Or Contact: David Nemo <david6366@msn.com>

3rd High-Energy Astrophysics Workshop for Amateur Astronomers

By Tim R Crawford
Arch Cape Observatory

In March I attend the 3rd High-energy Astrophysics Workshop for Amateur Astronomers in Las Cruces, NM. The workshop was sponsored by the AAVSO (American Association of Variable Star Observers), New Mexico State University, Sonoma State University, NASA's Swift and Glast Missions, and the Marshall Space flight Center with additional support by the Curry foundation.

High Energy Stellar objects include Gamma Ray Bursters, Blazars and Polars

The majority of the Professional Astrophysicists/ Astronomers making presentations placed considerable emphasis on how important the Amateur community is to the professionals. With the growth of CCD cameras enabling the imaging of star fields, Amateurs today, mostly through the AAVSO (American Association of Variable Star Observers), have an opportunity to make significant Scientific contributions.

I listened to a number of professionals discussing various High Energy Star types using magnitude, color and light curve data that they had acquired from the AAVSO; some of those stars were ones that have been part of my own observing program and it was encouraging to see how the professionals actually used the photometric data that I had helped to collect.

Blazars are simply Quasars (Radio Galaxies) with the "emissions" jet, passing through the center of the Galaxy, pointed straight at us. I have heard this referred to as looking down the throat of the dragon. This orientation of the Blazar lets us see the enormous busts of energy in the central jets, which are emitted across the whole spectrum. These stellar objects are classified as BL Lac Objects (BL LAC being one of the first to be identified as a Blazar), It is believed that the power source of these objects are super massive black holes. These objects make very suitable targets for Amateur Astronomers.

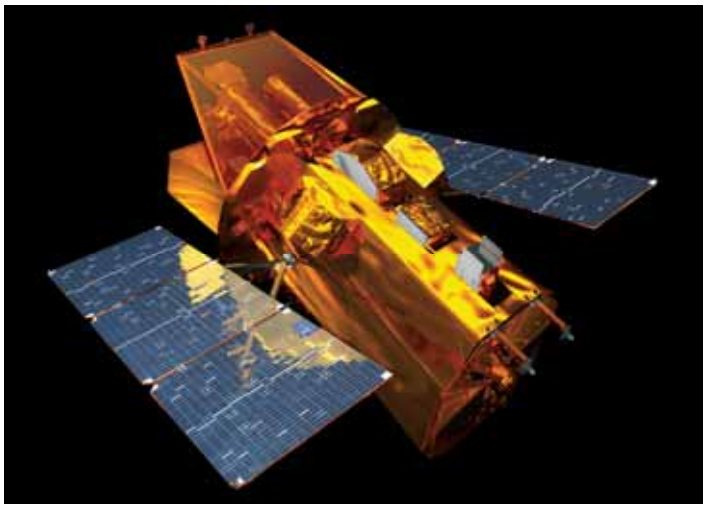
Polars, also known as Magnetic Cataclysmic Variables or AM Her stars, after the prototype, are binary star systems where the magnetic field of the white dwarf is so strong that it dominates the transfer of mass from the companion (usually a Sun type star) to the white dwarf). Because of the physics of how the accretion takes place between the two objects there is a great deal of energy released, especially in the X-ray spectrum. These objects also make very suitable targets for Amateur Astronomers.

The really humongous releases of energy in the Universe are the GRB's (Gamma Ray Bursts). Up to 10^{44} Joule/sec as compared to our Suns peak power of 10^{26} Joule/sec. The potential devastation of a single GRB is equal to the exploding of three million hydrogen bombs every second for a million billion years! Scary stuff. These targets are also suitable for Amateur Astronomers but have difficult time constraints as I will discuss later on.

While GLAST (Gamma-ray Large Area Space Telescope) is not scheduled to launch until 2006 the Swift Gamma-Ray Bust Mission, launched last fall, became fully operational this past February

(Continued on page 5)

Astrophysics Workshop *(Continued from page 4)*



Courtesy: NASA E/PO, Sonoma State University, Aurore Simonnet

Swifts main missions are to:

- Determine the Origins of GRBs;
- Classify GRB's and Search for new types;
- Determine how the GRB blastwave evolves and interacts with surroundings.
- Use GRB's to study the early universe; and
- Perform the first sensitive hard X-ray survey of the sky.

There are actually three instruments on board to accomplish the mission objectives:

- Burst Alert Telescope (BAT): the BAT is designed to sense a burst as it occurs. Once it detects the bust, Swift automatically changes position to point the other two Swift Telescopes at he bust within 75 seconds; fast enough to observe the afterglows and parts of the longer burst as well as sending alert information to ground stations where it is immediately dispensed to Associations, Institutions and Observatories with an interest.

- X-Ray Telescope (XRT): measures the rate and amount of energy of the GRB's and afterglows in the X-ray band.

- The Ultraviolet/optical Telescope (UVOT): The information collected at these wavelengths help the scientists better localize the burst, determine its distance and study it's afterglow.

Swift's role is especially important when you understand that 25 percent of the GRB's are less than 2 seconds in length and the majority of the remaining are less than 100 seconds in length.

While Amateurs will only rarely have sufficient notice to actually capture a GRB the afterglow is a potential target; but even here SPEED is still of the essence as the afterglow fades pretty fast and in most cases is beyond Amateur reach within two hours if not much sooner.

From a practical perspective I think you almost have to have your scope and CCD up and running when a GRB alert notice is issued to have a chance to gather any data.

The AAVSO operates an alert notice service for those with an interest.

For those interested in getting started with High Energy observations both the Polars and the Blazars are good choices to begin with.

I am going to include some useful links on this topic below and would encourage any one with an interest in CCD Variable Star Observing to contact either myself, tcarchcape@yahoo.com, or follow RCA member Jim Jones, nt7t@comcast.net.

AAVSO International High Energy Network:

http://www.aavso.org/observing/programs/hen

AAVSO CCD Observing Manual:

http://www.aavso.org/observing/programs/ccd/manual/

Gamma-ray Burst Real-time Sky Map:

http://grb.sonoma.edu/

Swift Gamma Ray Mission Home Page:

http://swift.gsfc.nasa.gov/docs/swift/swiftsc.html

BOARD MEETING MINUTES

April 4, 2005
OMSI Classroom 1
Ken Cone

President Carol Huston called the meeting to order at 7 pm.

Board members present: Peter Abrahams, Matt Brewster, Ken Cone, Patton Echols, Ed Epp, Dale Fenske, Ken Hose, Carol Huston, Jan Keiski, Bob McGown, Dareth Murray, David Nemo, Greg Rohde, Sameer Ruiwale, Jeff Sponaugle, Matt Vartanian.

Guests: Lee Olsen, Paul Swanson.

Board Reports:

- Secretary's Report – Ken Cone: Quorum (12) met with 16 voting members present.
- Treasurer's Report – Ed Epp: Cash in accounts $13,964. Need to have a budget discussion in May. Board members should plan on submitting their budget requests at the May meeting.
- VP Programming – Matt Brewster: Hans Bichsel speaker in May on Big Bang physics research at Brookhaven National Labs.
- VP Observing – Matt Vartanian The weekend of April 8th is our dark sky star party at Camp Hancock. Saturday April 16th we have the Astronomy Day star party in the OMSI East parking lot.
- VP Community Affairs – Jeff Sponaugle: nominal
- VP Membership – Ken Hose: 4 new members and 5 renewals from Mar. meeting for a total of $260. There are 305 member families. We had 2 renewals submit the prorated amount for new members, there is some confusion with on-line form, needs resolving. New member packet rewrite is finished and in the review process.
- New Member Advisor – Jim Reilly: Nothing new to report.
- Media Director – Patton: Nominal
- Sales – Sameer Ruiwale: Nominal
- Book Library – Jan Keiski: nominal.
- Telescope Library – Greg Rohde: The 12.5" telescope recovered from Randy Mays in St.Helens has been delivered to the telescope workshop. The main mirror was checked and found to be in very good condition, with only minor flaws. The original telescope maker in Everett WA was contacted by e-mail and limited spare parts may be available. Two telescopes were donated to the club this month. The first is a 4" f10 Meade on an equatorial mount w/clock drive, the second is a 6" Edmundson on a yoke mount. The tripod for the mount is not complete and a couple of parts will have to be fabricated for it. I will deliver it to the next ATM workshop.
- SIGs – Margaret McCrea: Absent
- IDA – Bob McGown: Nominal
- Magazine Subscriptions – Larry Godsey: $435.55 in magazine subscriptions for last month.
- Gazette Editor – Larry Deal: absent
- Webmaster – Dareth Murray: RCA board web site up on RCA site. It currently includes minutes from the last seven years.
- Alcor/Historian – Dale Fenske: AL roster updated.
- Site Committee Director – David Nemo: The site committee background, process, and proposals are available through a link on the RCA web site.
- Astronomical League – Carol submitted The Rosette Gazette to the AL to be considered for the annual Mabel Sterns Award for 2006.

Old Business

- Phone Line Report – Matt: two calls.

  Apr 5 through May 1: Dale

  May 2 through June 5: Bob

New Business

- RCA has been offered tickets and promotional materials to "The Hitchhikers Guide to the Galaxy" screening which will air in Portland on April 26. Carol will request a number of tickets for this event.
- Guest Lee Olsen facilitated a discussion by the board to recommend direction to the Observing Site Committee. A separate summary of this discussion and conclusions will be attached as an addendum to these minutes.
- Patton moved and Sameer seconded to formally establish the Observing Site Committee with members David Nemo, Matt Vartanian, Greg Rohde, Paul Swanson, Peter Abrahams, Bob Bond, and Leonard Bottleman. Motion carried.

Meeting adjourned at 9:10 PM.

Summary of April Board Meeting Discussion about the Proposed Observing Site Acquisition Plan:

David Nemo provided a brief background and overview of how the Observing Site Committee formed and developed their recommendations, including a survey of members that was a major factor in the proposed plan.

Their was a facilitated discussion on the following questions, with the noted outcome.

RESULTS OF DECISION POINTS

1. Should RCA pursue obtaining a club site?
   - Yes, by polling consensus

(Continued on page 7)

Proposed Observing Site Acquisition Plan Discussion
(Continued from page 6)

2. If yes, highest priority site: "close-in", "nearby", or "remote"?
    - Highest priority should be nearby site
    - Major factor influencing this position was that 66% of members surveyed supported this as the priority.

3. Priorities for "lease", "partnership", "purchase", "contract", "other"?
    - No board consensus on preferred acquisition method – general feeling was to consider recommendations that emerge from the OSC based on opportunities and negotiations.
    - As a general objective: Board wants maximum control of a site with minimum investment

4. Level of financial commitment/fundraising effort?
    - No board consensus on specific goal or method
    - Board will look to OSC to propose fundraising plan with any recommendation for a site.

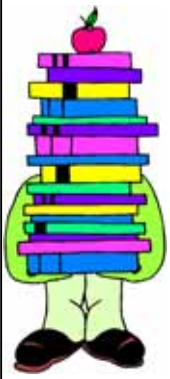
5. Other relevant concerns/issues?
    - "Acquisition" does not necessarily mean purchasing, and includes lease, use permit or some other manner of obtaining control of property.
    - Significant weight should be given the member survey.
    - When presented with a specific recommendation, the Board should be provided enough background information (including pros, cons, risks, support of goals, support of selection criteria) for to make informed decision.
    - Membership varies from very experienced, long-time members to relatively new (less than three years) – diversity must be taken into account for club support, retention, and new membership appeal
    - 104 club-wide survey respondents (from one year ago)
    - 66% of club-wide survey respondents favored a "nearby" site(s)
    - Board wants to enable OSC to make necessary recommendations and decisions and does not want to micro-manage the pursuit/outcome
    - Need a structured plan to implement site acquisition: small group of decision-makers [not entire board]; need lots of volunteers; need someone to manage overall
    - How and when to communicate meeting results and next steps with, and engage club membership

6. Next Steps
    - David Nemo, OSC Director, indicated he had felt there was clear enough overall board support to proceed, and that he had gleaned the basic parameters necessary from this session for the OSC to revise their work plan and submit to the Board for review and approval – hopefully in May.

1. Board voted to establish the OSC as a formal RCA committee with the following members.
    - David Nemo
    - Matt Vartanian
    - Peter Abrahams
    - Paul Swanson
    - Bob Bond
    - Leonard Bottleman

ACTION ITEMS

- David Nemo, OSC Director, to work with OSC to revise Acquisition Work Plan for board review/approval at the May 2005 board meeting. Plan should address or clarify:
    - Decision-making authority of Board
    - Authority of OSC
    - Format for making recommendations that gives the Board information on:
        - Evaluation of site characteristics
        - Due diligence necessary to eventually make decision
        - Cost and fundraising/payment plan
        - Maintenance Plan
        - Management Plan
        - Recommend checkpoints for board review/approval
- Consider how to "convene" board if an immediate decision is needed by the OSC prior to a regularly-scheduled board meeting (is such a provision included in bylaws?)
- Consider limited expenditure authority to OSC for search expenses.
- Consider giving authority to OSC to seek permission or a use permit on behalf of the Club to evaluate potential sites.



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CD-ROMs 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,

Jan Keiski (jikeiski@comcast.net)
503-539-4566

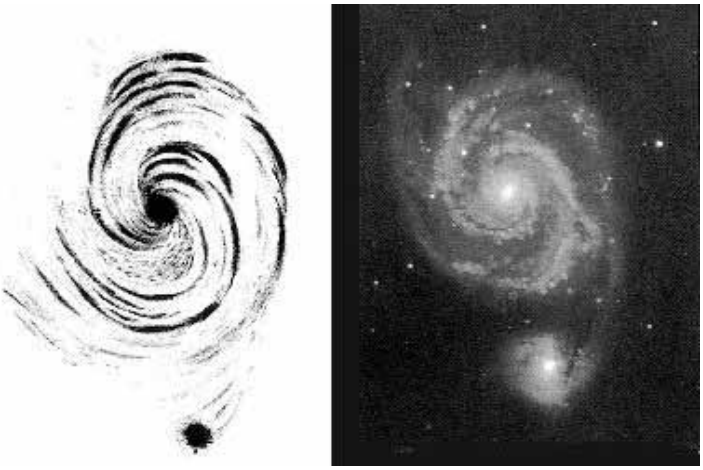
Visit the RCA library web page at:
http://www.rca-omsi.org/library.htm

THE OBSERVER'S CORNER

Howard Banich

There are three special galaxies well placed for their best possible views this month, and if the sky cooperates you may find them to be engaging destinations for a night or two of dark sky observing..

M51 is well known for its beautiful spiral arms and companion galaxy. It's not only photogenic but is also one of great visual treats in the springtime northern sky. Not far away is **M101**, another face on spiral brimming with subtle spiral arm structure and emission nebulae, all of which needs the clearest and darkest of nights to fully appreciate. M101 is surrounded by a flock of much fainter galaxies that can be just as fun to track down as M101's spiral arms and nebulae. **M87** is a galaxy of a different breed – a huge elliptical – that's near the center of the great Virgo Galaxy Cluster and has a hidden challenge for those with large scopes. This month, all three galaxies will be near the meridian around midnight making this the best time of the year for a good look.



http://www.seds.org/messier/more/m-rosse.html

M51 is famous for the galaxy that spiral structure was first seen in. Lord Rosse discovered it with his 72" speculum metal mirror leviathan from Ireland in the 18th century, but today you'll need no more than an 8" scope (and a great night) to detect the spiral arms. You won't have the same detailed view Lord Rosse did with his 72", but then you won't be perched on a scaffold 30 feet up looking down a gigantic metal tube either.

The most obvious thing about M51 is that it is really two galaxies right next to each other. On a poor night or in a small scope this is about all that can be seen so let's take a minute and ponder what's going on here.

The larger face on spiral galaxy is denoted as NGC 5194. The smaller component is NGC 5195, and they're gravitationally interacting with each other. Simulations have shown that the smaller 5195 is moving at nearly 90 degrees to the plane of 5194 and has drawn material in a tidal tail between them. If we could see M51 edge on we'd probably see that 5195 is a considerable distance from the plane of 5194 and is distorting it into a warped disk. Interesting stuff. Even better, the interaction has infused a tremendous amount on energy into both galaxies stimulating star birth, and in this spectacular instance helped define the spiral arms in 5194.

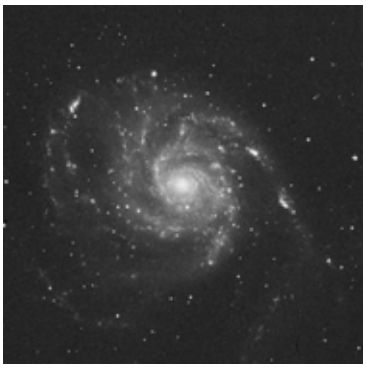
http://www.astrosurf.com/benoit/ngc.html

I imagine that M51's spiral arms have been one of the leading causes of aperture fever. A larger scope gives a surprisingly detailed and bright view, which provides a wonderful "wow!" experience at the eyepiece. A ccd image will show more, and in color, but the special thrill of seeing M51 in all its glory live through an eyepiece is unique and gives a better sense of how ephemeral and delicate a spiral galaxy really is.

The connecting spiral arm between 5194 and 5195 is surprisingly difficult to see all the way between the two. Even in photos the arm is rather inconspicuous, but the eye tends to make the connection anyway. Next time you're looking at M51, really look and see just what you can or can't see here.

Also note in the detailed photo that there are several small and faint background galaxies. These can be detected with only the largest scopes, but they offer an enjoyable challenge for the very best of nights.

(Continued on page 9)



http://www.seds.org/messier/more/m-rosse.html

M101 is not as well defined as M51 but can still present its delicate spiral structure to a large enough scope on a dark enough night. My first encounter was with a 3" refractor from suburban skies, which resulted in not seeing a trace of it, mostly because it really is rather faint and much larger than I expected. Several years later an 8" brought out a smudge and a few years after that a 12.5"started to show spiral structure. Pretty cool sight at each aperture because I really didn't know what to expect.

If you can see the spiral arms you may see that they're rather uneven looking - these are large star clouds and emission nebulae that stand out so well in photographs. A detailed star atlas will pinpoint them as the brightest of them have their own NGC number.

The above two images compare the sketch by Lord Rosse made with his 72" scope to a modern photo. Pretty good sketch, but I like it mostly because it was drawn without preconception of M101's true nature. Lord Rosse didn't know about spiral structure beforehand – he discovered it – so he drew only what he saw.

M87 is a huge elliptical galaxy in Virgo, somewhat south from the main concentration of the Virgo Cluster. It's an oval fuzz ball, one of the brightest of this kind of galaxy in the sky, but it also has a remarkable feature that's possible to glimpse with a large amateur telescope – a jet of material accelerated to relativistic speeds from the super massive black hole at the center of M87's active core. Wow, who wouldn't want to see that! Unfortunately this is a very tough one, and will require the very best night, a scope 16" or larger, a keen, well trained dark adapted eye and high magnification to detect.

Oh well, just knowing it's there is almost as much fun.

http://www.astrosurf.com/benoit/ngc.html

The photo on the left above shows M87 and a few companion galaxies, with the photo on the right a slightly closer up but shorter exposure view that shows the central jet. The bottom photo was taken by the HST and shows the jet in detail, and many of the star-like images are actually globular clusters.

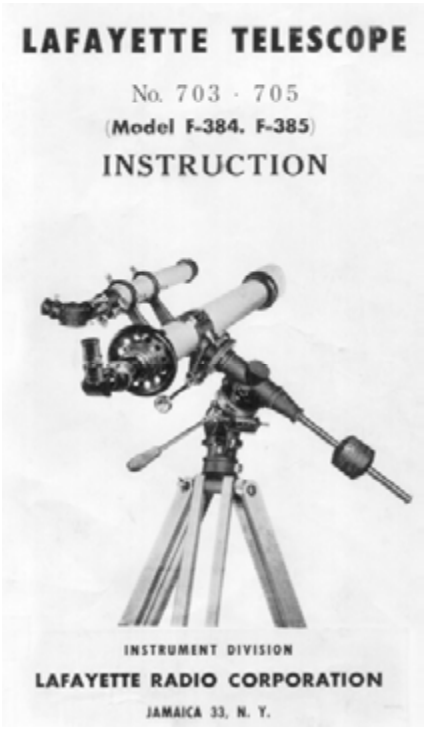
Aside from the central jet there isn't much detail to see visually in M87, so the fun here is mostly in your imagination. That and all the nearby galaxies of the Virgo Cluster, but that's a whole different story.

http://www.gralak.com/Astro/M87-Jet.jpg

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 7

By John W. Siple

The "Arcturus" (D=76.2mm f=910mm). A complete instrument that is all-original, it even has the bill of sale dated February 23, 1961. Telescope Serial No. 070723/Objective No. 34318.



Instruction manual for the Lafayette Radio Electronics Model F-385 "Arcturus" 3" f/12 equatorial refractor. A Cadillac of telescopes, it is characterized by a helicoid or "rotating wheel" focusing mechanism.

Lafayette Radio Electronics Corporation was a major supplier of electronic parts and equipment for the ham radio operator, hobbyist, and science aficionado. Everything imaginable from audio adapters to yoke testers could be found in their catalog listings. Merchandise was available through its nationwide retail stores or by mail order. Their diversified catalogs also had advertisements for astronomical equipment; the offerings included the popular Model F-400 '14" Transparent Celestial Globe,' and a line of small refractors and reflectors. The beloved company remained in business from 1921 until 1981 (60 years), at which point they merged with their new operating owner Circuit City Stores, Inc. Good in quality, the telescopes are now collector's items. The best astronomical telescope sold through Lafayette's "Instrument Division for Research Equipment" was a 79mm (76.2mm clear aperture) equatorial refractor of unusually stout construction, called the "Arcturus." Its limited distribution years of 1959-65 (in 1970 the name was transferred to a 4 ½" reflector) make the instrument a rarity. This refractor was heavily advertised in Sky & Telescope magazine from December 1959 through January 1961, inclusive (see page 96 of the December 1959 issue for further details). Lafayette Radio Electronics also sold a similar but less extravagant companion telescope (Model F-384), aptly named the "Galactic." At that time the world was awash in talk of Sputnik and artificial earth-orbiting satellites.

The outstanding feature of the 910mm focal length refractor, an Astro Optical Industries Co., Ltd. product (Chihayacyo Toshimaku, Tokyo, Japan), is its helicoid focusing mechanism, consisting of a massive 5.5" diameter wheel turning on an ultra-fine helical gear (this is used for fine focusing only, rough adjustment is by a central slide-out drawtube). The heavy-duty equatorial mounting, finished in attractive black crinkle enamel, has silky-smooth slow motion controls, setting circles, one large counterweight with lock, and is supported by an oversized, extensible ash tripod. The hard-coated, air-spaced Fraunhofer achromatic objective lens is held in a permanently collimated cell, and has its own separate serial number (another mark of distinction). A well-made 1.6" (42mm), 500mm focal length viewfinder, Model F-628, with rack-and-pinion focusing rides on top (available separately for $17.95).

A person is never at want for lack of observing accessories, since this telescope is simply loaded with them! An Or 4mm (227x), HM 6mm (152x), HM 9mm (101x), HM 12.5mm (73x), variable K 26mm/AH 32mm (35x/28x), all with 0.965" diameter barrels, and a 1.25" H 50mm (18x) completes the regiment of eyepieces. The viewfinder uses a 25x crosshair eyepiece. Two star diagonals, filters, a Barlow lens for the doubling of powers, an erecting prism for terrestrial viewing, adapter tubes, Herschel Wedge and metal projection screens for solar observation came as standard equipment. Four optimally-placed internal light baffles suppress scattered light, and a

(Continued on page 11)

A Sampling of Telescopes Part 7 *(Continued from page 10)*

sculpted slip-on dewcap prevents moisture buildup. The design of the metal tube assembly strongly resembles that of a vintage Tasco 3" f/15.75 Model #10TE Solarama refractor (also an Astro Optical Industries Co., Ltd. product), but is bulkier because of the presence of the odd helicoid focuser (and of course is shorter by 290mm, the difference in focal lengths). The whole telescope has a somewhat "squat" or "blocky" appearance. Two beautiful wooden storage cabinets hold the disassembled refractor when transporting to a dark-sky site.

In Hartford, Conn., Criterion Manufacturing Co. sold imported individual objectives with the exact same artfully-designed lens cells for $52.00 (catalog #S-220), except with a longer focal length of 1250mm (see page 411 of the May 1959 issue of Sky & Telescope). Across the country in Oakland, Calif., Optica b/c, a major supplier of superior quality components and complete telescopes to the amateur astronomer, marketed modified versions of the "Arcturus": (910mm), 1200mm, and 1400mm units having a mixture of motor drive, wooden tripod and metal pier options. In Optica's 1967 catalog their stock #2006 is essentially the same as Lafayette's Model F-384 "Galactic" (a small 6X30mm finder is used instead of the 1.6", 500mm guide scope), while #2007 has an increased focal length to 1200mm and now incorporates the professional helicoid focusing mechanism. Premier stock #2008, with an advantageous focal length of 1400mm and the helicoid focuser, dual 6X30mm and 12X40mm finders, all-metal pedestal, legs and electric clock drive is listed at $752.00. An electric clock drive mechanism for automatic star tracking was not an option given by Lafayette Radio Electronics. Each lens has a light-collecting power of 118 times compared to that of the naked eye.

The -0.04 magnitude star Arcturus ("Bear-Guard") in the constellation Bootes the Herdsman, for which the Lafayette Radio Electronics telescope receives its namesake, is a very sharp, brilliant yellow-orange point of light in the 3" refractor. Star testing using a Nagler 4.8mm ocular (190x) reveals that images on either side of focus are identical, displaying uniform illumination within the extra-focal rings. The objective lens is free of zonal errors, surface roughness, astigmatism, and spherical aberration. However, there is a level of chromatic aberration typical of faster 3" f/12 doublet systems. Arcturus, the fourth brightest star in the heavens, is only 36 light-years distant.

The 1961 catalog, a dreamland of electronics and related "toys" for the science-minded. Stargazers could find the "Arcturus" on page 305 for $269.50. The "Galactic," Lafayette's other 3" refractor telescope, is priced lower at $189.00.

In Scorpius to the south lies Antares ("Heart of the Scorpion"), a class M supergiant variable star that glows with a strong reddish-orange hue in the small refractor. The star is also a close double (mags. 1.2, 5.4; sep. 2.9"; p.a. 275°), but the greenish-colored secondary is hidden by the glare and is completely beyond the reach of this telescope. A 6-8" instrument with excellent optics and operating under good seeing conditions is normally required to resolve the pair. At 520 light-years, Antares is over fourteen times as far away as Arcturus.

Found just 1.3° W of Antares and in the same field of view of the low power Huygens 50mm eyepiece is the irregular globular star cluster M4. NGC 6121 is known as a "loose" or easily resolvable globular, and is characterized by a central N-S running bar or lane of brighter stars. At low power the bar is very apparent, surrounded by a granular haze of unresolved suns. "Upping" the power to 73x with the HM 12.5mm ocular produces a more dramatic result; numerous stars are seen resolved in the lane along with scores of outliers. The view is again improved (136x) with a modern Meade 6.7mm Ultra-wide angle eyepiece. M4, one of the closest globular clusters to earth, lies 6500 light-years away.

In the same region of Scorpius are found several remarkably pretty double and multiple stars, worthy of telescopic inspection. Beta Scorpii or "Graffias" (mags. 2.6, 4.9; sep. 13.6"; p.a. 21°) has been likened as a twin to the more well-known Mizar in Ursa Major. A stunning sight in the supplied 26mm K (35x) eyepiece, the primary appears as dazzling white orb with the pale blue secondary star nestled nearby. The HM 9mm eyepiece helps to bring out the colors of the pair. A scan with the H 50mm picks up the double-double star system Nu Scorpii, one of the finest quadruple systems in the heavens for observers. The wide 41.4" AB-CD pair is instantly obvious. Although the yellow-tinged white primary (AB--mags. 4.3, 6.8; sep. 0.9"; p.a. 03°) is outside the resolution capability of the Lafayette refractor (theoretical limit is 1.6 seconds of arc), the fainter secondary star, itself another close double (CD--mags. 6.4, 7.8; sep. 2.3"; p.a. 51°), can be split with difficulty using the Or 4mm eyepiece.

Fortunate indeed is the amateur astronomer who owns a Lafayette Radio Electronics "Arcturus." Precision-crafted, only the finest materials went into its construction (this instrument proudly bears the "Japan Telescopes Inspection Institute" label on the focuser). Because of the shorter focal length (and wider field) compared to conventional f/15-16 refractors, it is often the telescope of choice for impromptu observing sessions. A prize for any vintage telescope collection! Current secondary market value is $500-600.

**A great thanks goes to Robert J. Zito of Redmond, Wash., who helped provide production years for the unusual "Arcturus" equatorial refractor telescope. Mr. Zito is the author of "The Misfits of Channel 10," which has a wonderful section on the history of Lafayette Radio Electronics Corporation and his experiences at their retail outlet store in Syosset, New York.

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

May 2005

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				

May 2005

May 2	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
May 6-7	Fri-Sat	Star Party!	Camp Hancock	
May 14	Sat	Planet Parade	OMSI East Parking Lot	
May 16	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
May 19	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm
May 21	Sat	Telescope Workshop	Swan Island	10am-3pm

June 2005

Jun 6	Mon	RCA Board Meeting	OMSI Classroom 1	7pm
Jun 20	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Jun 23	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

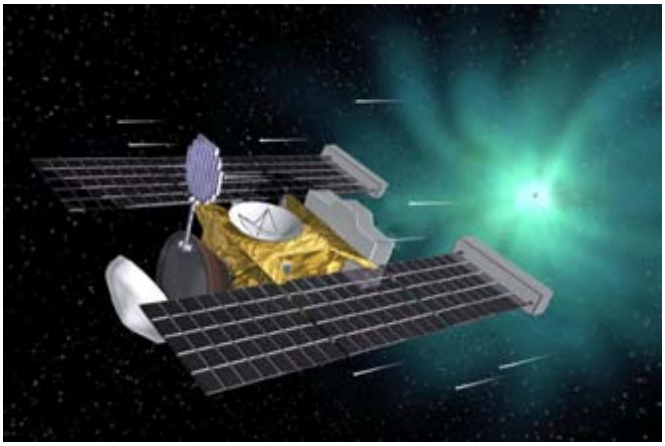
The RCA General Meeting falls on the third Monday of each month. We usually meet in the Auditorium at OMSI, next to the Murdock Planetarium. Occasionally the meeting is held in Murdock Planetarium. Check here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 6 Newsletter of the Rose City Astronomers June, 2005

RCA June General Meeting
Mission Stardust
Presented By
Dr. Donald Brownlee



In This Issue:

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

The idea of collecting micro-particles from our solar system was a concept Drs. Donald Brownlee from the University of Washington and Peter Tsou from the Jet Propulsion Laboratory have been working on since the early 1980's. Awarded in 1994, Stardust personnel began designing and building this historic mission to rendezvous with a comet and return particles back to Earth almost seven years after it's launch.

On January 15, 2006 after traveling 2.9 billion miles, the 101 lb sample return capsule will jettison back to earth for a dramatic night return. The sample return capsule will be released on a straight entry, descent, and landing path to the planed landing footprint in the Utah desert.

On Jan 2nd, Stardust came within 150 miles of the core of comet Wild 2, gathering a variety of scientific readings and sending closeup pictures back to Earth. Returning with its treasure, bits of comet dust, astronomers will have valuable puzzle pieces to decipher the structure of our solar system.

Everyone is Welcome!
Monday June 20
Social Gathering: 7 p.m.
Meeting Begins: 7:30 p.m.
Location: OMSI Auditorium

Hubble Deep Field above courtesy R. Williams (STScI), the Hubble Deep Field Team and NASA.
Moon photos below courtesy David Haworth

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
June 6, 2:58 PM PDT	June 14, 6:24 PM. PDT	June 21, 9:16 PM. PDT	June 28, 11:25 AM. PDT

Club Officers			
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OSP Liaison	Dareth Murray	(503) 957-4499	darethlee@comcast.net
Camp Hancock Liaison	Glenn Graham	(503) 579-1141	the.grahams@verizon.net
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SIG Director	Margaret McCrea	(503) 232-7636	mmcrea@nwlink.com
Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.org

RCA MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is reduced rate subscriptions to Sky & Telescope and Astronomy magazines. Sky & Telescope Magazine is $32.95 for one year. Astronomy magazine is $29 for one year or $55 for two years. **For more information go to the RCA web site and click on any of the links for magazines.**

Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings. Please Note: Allow two months for your subscription to be renewed. Sky & Telescope Store Discount.

RCA members who subscribe to Sky & Telescope are entitled to a 10% discount at the Sky & Telescope online store at: http://skyandtelescope.com/shopsky To get your discount, enter Rose City Astronomers when prompted for your club name during checkout at the Sky & Telescope online store.

President's Message

By Carol Huston
June 2005

As the summer approaches, I have renewed my interest in the summer constellations. My old friend Cygus is becoming once again a significant sight with many interesting objects and stars embedded in its Milky Way path. Upon reflection on the alpha star Deneb, I'd like to share with you an interesting point of view that a friend of mine put forth one lovely observing evening:

As we gaze at Deneb through your telescope, we are seeing photons that left that left that star 1600 years ago. Those photons have passed through unimaginable reaches of space over all of that time, never once hitting one of the 10 to the 80th universal objects or the dark universal matter that is 9 times greater than that. During that time, through an utterly amazing coincidence, the Milky Way, the Solar System, Earth, this telescope, and YOU all coalesced from the primordial universe, and then, over time and with astounding precision, positioned themselves right in the path of those photons. For the first time in all of time, those photons struck something. After 1600 years, they fell into this telescope, hit the primary mirror, bounced off the secondary mirror, went through the lens, and through the tiny pupil of your eye.

There, after 1600 years of unceasing existence, they died.

But then, another way to look at it is ~ ~ ~

Upon hitting the retina, the photons just change to electrons, then to chemical energy, and therefore a tiny bit of mass. So, when you observe a star, part of it becomes part of you.

Quite a reunion, as we were all once stardust ourselves.

Starting in June, the Junior RCA will commence a program of observing for Children ages 13 and under! The program will involve gaining knowledge and experience in observational astronomy with experts from the amateur astronomy community. The culmination of the child's work will result in recognition at the general meetings (if a child does not want public recognition, that's fine, too!). Each of these young amateur astronomers will receive a certificate and medallion, as well as the opportunity to become an expert resource for other child astronomers following them through the program!

ASTROPHYSICS / COSMOLOGY SIG

Date/Time: Thursday, June 23, 7 PM.

Speaker: Matt Brewster

Topic: "Universal Constants: Just 6 Numbers"

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

Contact: Bob McGown (503-244-0078)

or Dareth Murray, (503-957-4499) for more information.

We are looking for speakers to lead a discussion. What is your favorite topic in Astrophysics or Cosmology? Let's talk about it! Call Bob at 503-244-0078 or email him: bobmcgown@comcast.net

Observing Site Committee

To lead and coordinate efforts of the Rose City Astronomers (RCA) in securing and managing a variety of observing sites for private use by members, and for community outreach and special events organized by the RCA.

Please Check http://nemoworld.com/RCA/sitehome.htm for more information.

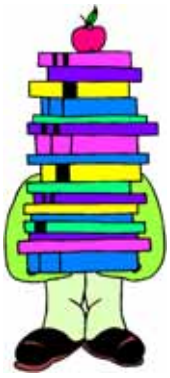
Or Contact: David Nemo <david6366@msn.com>

Telescope Workshop

Date/Time: Saturday, June 18, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

Contact: John DeLacy <johncdelacy@comcast.net> for more information



RCA LIBRARY

Please welcome Chris Steinkamp and Carolyn Nissen, new library assistants!!! And a special thank you to Rea & Richard LaBar for their many years of library assistance.

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CD-ROMs 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:Jan Keiski (jikeiski@comcast.net) 503-539-4566

Visit the RCA library web page at:
http://www.rca-omsi.org/library.htm

Rose City Astronomers 'Downtowner's' Lunch

Join us on the first Friday of each month for lunch at the Great China Seafood restaurant (Holidays and such may push us to the second Friday of some months, check the calendar at http://www.rca-omsi.org).
Cost is $6.50 for all-you-can-eat Chinese Buffet Lunch.
Great China Seafood restaurant
334 N.W. Davis, Upstairs on the 2nd floor
Great conversation and buffet lunch.
For more information contact: Margaret McCrea at mmcrea@nwlink.com

Camp Hancock Images… By Meg Grace

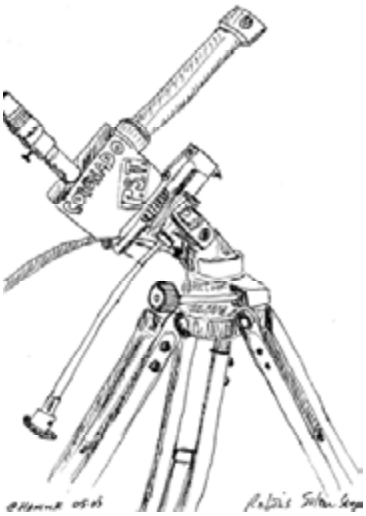
The first weekend in May was the occasion of the second of three star parties to be held at Camp Hancock this observing season. I drove out with my friend, Rob King, on Friday afternoon. We arrived around 4 pm to a sky thick with clouds. It did not bode well for a night of observing. However, as you may have heard by now, the sky cleared gradually at dusk and by dark was clear! Wow! I experienced a wonderful evening of observing and logged about 10 Herschel I objects. My favorite was NGC 2683, a bright, needle-shaped galaxy located in Lynx. By 3 am, the air was dewy and the sky was clouding up.

I didn't get a chance to do any sketching at night, but I did make two drawings during the day.

After lunch on Saturday, I spent some time out in the observing field, planning my observing session for that night, which, unfortunately, was not to be. Then, I took out my sketch book and made this drawing of Robin Baker's solar scope *(left)*. This proved to be astonishingly prescient on my part.

Sunday morning, I was all ready to go. But Rob wasn't. I made another drawing out at the observing field waiting to load up my gear. This lone juniper *(Center)* is on the West side of the field.

This lovely looking sky *(below)* was photographed on Saturday mid-morning. I thought this was a good omen for the coming night. But it was not to be. Still, I enjoyed the view during the day.



OREGON STAR PARTY 2005

It's June, and thoughts turn to....dark nights and sunny days and it's time to get your early registration done for OSP! Yes, online registration for what is a nationally recognized dark sky event, the 2005 Oregon Star Party, is now up and ready for you 24/7. OSP is scheduled for September 1-4, 2005, over the Labor Day weekend. You can register either online or via snail mail by visiting the web site's registration link at http://www.oregonstarparty.org/2005reginfo.htm

For those who have yet to experience OSP, you can review stories from the prior years, and do some planning for this year right there on the web site. OSP is held in the Ochoco Forest, about an hour outside of Prineville OR. The site is remote, and the dark skies have drawn visitors from the Southwest, Midwest and East coast annually. For most RCA members, it is about a 4.5 hour drive from the Rose Garden. So mark your calendars, bookmark your browsers, and get ahead of the crowd by signing up for the 2005 OSP.

Remember, while Mars will not have as large a disk as in 2003, it will be higher in the sky, allowing for a good chance at observing our close neighbor in great detail. During OSP it should show 14.2 arc seconds in diameter-quite a show for us. So please consider joining us for both excellent planetary and deep sky observing with about 800-1000 of your closest friends. We are able to partake of good food, espressos, onsite showers, vendors with tons of astro gear, and a great array of speakers. And while you visit our web site, please consider joining the OSP crew as a volunteer. It is a great way to contribute to the fun, and to meet a number of new friends.

See you in September!

BOARD MEETING MINUTES

May 2, 2005
OMSI Classroom 1
Ken Cone

President Carol Huston called the meeting to order at 7 pm.

Board members present: Peter Abrahams, Matt Brewster, Ken Cone, Patton Echols, Dale Fenske, Jenny Forrester, Larry Godsey, Ken Hose, Carol Huston, Jan Keiski, Bob McGown, Dareth Murray, David Nemo, Ginny Pitts, Greg Rohde, Jeff Sponaugle, Matt Vartanian

Board Reports:

- Secretary's Report – Ken Cone: Quorum (12) met with 16 voting members present.
- Treasurer's Report – Ginny Pitts: Cash in accounts $15,909
- VP Programming – Matt Brewster: Motion by Matt and second by Dareth to provide five year membership to Oregon Episcopal School. Motion carried. Sunriver Nature Center is interested in setting up a table in lobby for general meetings. They will be promoting the upcoming Mt. Bachelor star party in June. Don Brownlee from University of Washington is June speaker – topic is Stardust. In July Dave Powell will talk on famous astronomers.
- VP Observing – Matt Vartanian: Hancock next weekend. Planet parade in OMSI parking lot May 14th.
- VP Community Affairs – Jeff Sponaugle: May 13th star party at Barnes Elementary School on Walker Road. June 13 is an activity at Oxbow Park.
- VP Membership – Ken Hose: 3 new members and 2 renewals from April meeting for a total of $146. There are 309 member families. Jeff Sponaugle printed up new member packets for review.
- New Member Advisor – Jim Reilly: Absent – no report.
- Media Director – Patton: No media contacts. Hitchhiker's Guide premier event went well with many members attending. Patton would like to get everyone's input on how the media position can best be leveraged for what we want to accomplish. Action item: Patton will conduct an e-mail discussion over the next month to get ideas.
- Sales – Sameer Ruiwale: By e-mail: February sales totaled $37.
- Book Library – Jan Keiski: New library assistants, Carolyn Nissen and Chris Steinkamp.
- Telescope Library – Greg Rohde: The 6" donor scope is in ATM workshop, building Dob base for it. Greg provided plan for 5 other scopes in library. Greg recommends we sell the 8" older SCT because it has not been checked out in 18 months. 12.5" F6.25 in ATM workshop being rebuilt. Greg recommends selling the club solar scope because it is so difficult for members to use – replacing it with a couple of PST's. Matt B volunteered to set up a Coronado side by side with the club solar scope to get a comparison before we actually sold the solar scope. Motion by Greg and second by Larry to sell 8" Orange SCT because it has not been checked out for 18 months. Motion carried.
- SIGs – Margaret McCrea: Absent – no report.
- IDA – Bob McGown: Putting together Power Point presentation upcoming IDA presentations. Bob & Dareth are becoming Oregon IDA representatives to international organization.
- Magazine Subscriptions – Larry Godsey: $460.60 in magazine subscriptions for April.
- Gazette Editor – Larry Deal: Absent – No report. There was some discussion about how to make the newsletter operate most economically. Action item: Carol will talk with Larry to initiate an e-mail board discussion to gather and evaluate ideas.
- Webmaster – Dareth Murray: Finishing RCA board site.
- Alcor/Historian – Dale Fenske: No report.
- Site Committee Director – David Nemo: No report. David will be presenting a summary of last-months meeting along with the actions items at June's board meeting.
- Other: OMSI, JRCA, Copying, Misc: Jenny proposed an observing program and certificate for the JRCA kids' program, possibly using AL program as a basis. Lots of ideas suggested. Jenny requested $50 from the current budget to start the program, and this was approved.
- Alcor/Historian – Dale: No report.

Old Business

- Action Item: David Nemo to report on Observing Site Committee issues – tabled for next month's board meeting.
- Phone Line Report – Dale: Nominal
- May 2 through June 5: Bob
- June 6 through July 10: Dareth

New Business

- Carol reviewed the proposed annual agreement from Jim Todd between RCA and OMSI for May 2005 through May 2006. The contract is essentially the same as last year and commits RCA to staff 8 star parties, one community event, and one OMSI workday in exchange for RCA's use of OMSI's facilities for meetings. Motion by Ginny that the contract be accepted. Dareth seconded, and motion carried.
- Ginny led a review of the preliminary budget submittals. We will vote on ratifying the budget at the June board meeting.

Meeting adjourned at 8:50 pm.

THE OBSERVER'S CORNER

Howard Banich

Consider light pollution:

August 15, 2003, Goodwood, Ontario
28mm, f2.8, Fuji 800, 30 seconds
T. Carlson

August 14, 2003, Goodwood, Ontario
28mm, f2.8, Fuji 800, 90 seconds
T. Carlson

http://www.skynewsmagazine.com/pages/lightpollution.html

These two photos were taken 24 hours apart at the same time of night. The photo on the left shows the normal light pollution of Goodwood Ontario, and the photo on the right shows the sky when a large power outage effected much of the northeast US and southeast Canada. These photos are perhaps the single most powerful demonstration of light pollutions dulling effects on our night sky. The people caught in the August 14, 2003 power outage had their night sky back for only one night, and I'm sure everyone was happy to have the power back on, but I wonder if a washed out sky has to be a forgone conclusion for everyone living in or near an urban area.

The International Dark-Sky Association (http://www.darksky.org/) thinks we can reclaim our night sky. Organized in 1988, "IDA's goals are to be effective in stopping the adverse environmental impact on dark skies by building awareness of the problem of light pollution and of the solutions, and to educate everyone about the value and effectiveness of quality nighttime lighting."

A specific approach to support outdoor lighting that directs its light downward instead of everywhere has been meeting growing success worldwide, but the problem is so large that their efforts are only just starting.

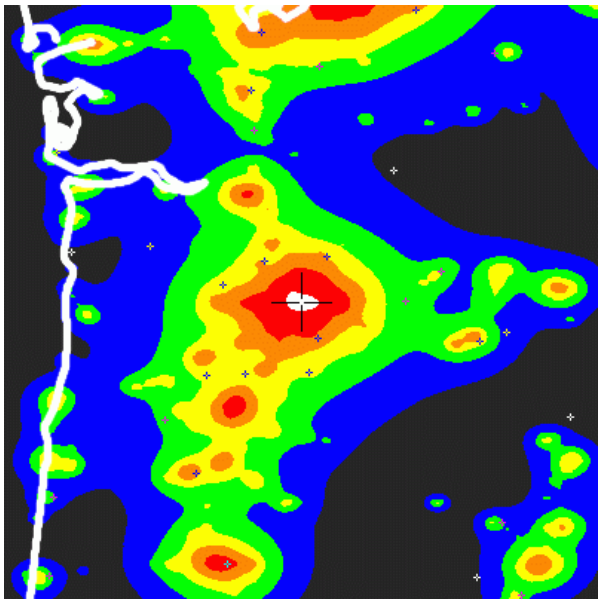
Outdoor lighting fixtures that direct their light below horizontal means that less energy is needed to illuminate the ground, and very little to no direct light is directed into the atmosphere. Governments like the idea of saving money on energy bills at least as much as the average citizen, and with increasing energy costs it seems likely that IDA's efforts will continue to gain members and influence.

But more members are needed and perhaps that's where you come in. For as little as $30 a year you can be a member and support IDA's efforts. As lovers of the night sky all amateur astronomers would seemingly be members by now but that doesn't seem to be case. If you've been putting off joining, have just found out about the

(Continued on page 7)

THE OBSERVER'S CORNER *(Continued from page 6)*

IDA, or really don't think this is a problem we can do much about, consider the light pollution map below.

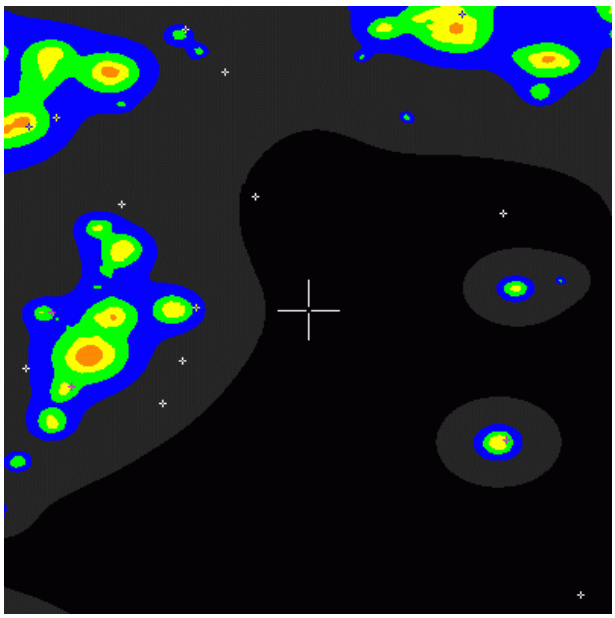


http://cleardarksky.com/lp/PortORlp.html

Portland Oregon light pollution map. I live in the small white area…

The contour map above shows the Portland area light pollution levels. It's interesting to note how far light pollution spreads, which is the main reason we drive to central Oregon.

In the contour map below, the center point is the site of the Oregon Star Party, with the growing light domes of Bend, Redmond and Prineville on the left side. Unchecked, these light pollution domes will spread to the OSP site and poof, it's no longer a true dark sky site. The first pollution level is only about 30 miles away…



http://cleardarksky.com/lp/OrgnSpORlp.html

Oregon Star Party light pollution map.

Oaxaca 05

By Jim Reilly

I visited a friend in the southern-Mexico state of Oaxaca in early May. I had dropped in last year with binoculars, and showed many locals some of the bino-highlights of their sky (most notably the planets and Omega Centauri). This year I was bringing Ana her dream package: a six-inch f/5 telescope (from Sean's Astro-Shop) on a homemade wooden base.

While May again proved messy for observing (the rainy season is just beginning about now), the skies were sufficiently cooperative for Jupiter, Saturn and several deep-sky treasures (though again less than I had hoped). The families nearby gathered as soon as stars began to appear, and with the best skies we saw the planets at 166x, where they revealed great details to the delighted audience.

While views of Omega Cen and Centaurus A were pleasant, my greatest surprise was lightning-bugs, which before this I had only seen on a famous Disney ride! These luciérnaga (my best guess at spelling) were not common, but the few I saw were fascinating.

In daylight I also saw many lizards, several spieces of cactus (one of which became quite attached to me!), the caracara vulture (like a WW-II airplane, dark with white patches near the wingtips) and the Zapotec ruins at Yagúl.

It was a fun trip, although way too short. Ana is now in charge of her telescope, and I wish her luck establishing hours of viewing; one couple knocked on my door at 12:30AM when they saw the skies were clear! Of course, within 15 minutes it was cloudy again, but they all have to learn just like we all did, that astronomers are a patient and tough bunch. You will find the story of the trip at htt://www.granitic.net/oaxaca/oaxaca05.htm (links to the previous trip, and to the pre-trip telescope making, are available just below the 'postcard' image at this site).

An Apache Point Adventure - Sacramento Peak Observatories

By Bob McGown & Dareth Murray

It was just after dawn when we descended the 800 feet through the awesome natural entrance of Carlsbad Caverns in New Mexico. After a great experience touring the King's Palace and other wonders and our guide talking about possible caves on other worlds, we returned to the surface and onward to Apache Point Observatory. We headed up north into the Sacramento Mountains, through the resort town of Cloudcroft to tiny science community Sunspot and the observatories on the summit.

Image courtesy of Sloan Digital Sky Survey.

Apache Point Observatory is privately owned and supported by the Astrophysical Research Consortium whose members include: The Institute for Advanced Study, University of Chicago, University of Colorado-Boulder, Johns Hopkins University, New Mexico State University, Princeton University and University of Washington. NM State University operates the observatory site for the consortium.

We wound up the steep road through snow and pines to the summit of Sacramento Peak at 9,200 feet elevation. We had emailed ahead to our friends on the mountain but weren't sure if the road would be clear of ice, so had no set time of arrival. As we came into the observatory site, electrical technician Dave Woods greeted us and offered a tour of the 3.5 facility while we discussed optics and cryogenics. We marveled at the suspension of the roll off roof suspension of the enclosure of the Sloan Digital Sky Survey telescope and the suspended domes on piers to get above the dwarf pines living on the summit.

Our main focus was the 3.5-meter telescope "ARC" new technology telescope owned by the consortium. The primary mirror is a spun mirror from the University of Arizona, Stewart Observatory Mirror Grinding Lab. The design of mirror makes the telescope lightweight and easy to use, with a large aperture for highly accurate targeting. This scope has been used to track missile events from nearby Holloman Air Force Base. Mounted on the frame of the telescope is the Next Generation Lunar Ranging.

The telescope is designed at the Nasmyth focus to quickly be able to switch from any of the six instruments owned by various universities in the consortium. With seven ports, the change from one instrument to another is made in about 30 seconds! There is a light shroud with a circular suit with tertiary mirror to reflect the image to the equatorial focus. Targets of opportunity include gamma ray bursts and supernovae.

On the floor below is the cryogenic facility for the cooling of the instrument. Dave was fine-tuning the instruments at the time for the evening's data acquisition and for other evening projects. Several of the universities can use the 3.5-meter on the same evening due to the quick transition time. Dave was called back to duty to work late but before leaving, he let us out on the catwalk perch of the ARC dome and we were able to see the National Solar Observatory, a mere half-mile away on a neighboring peak.

As we drove up the road to the National Solar Observatory, we chuckled as we saw the street signs - "Solar Physics Drive" and "Corona Avenue." We knew we had come to the right place! At the summit we toured many of the solar telescopes and fa-

(Continued on page 9)

Sacramento Peak Observatories *(Continued from page 8)*

cilities. The highlight was the Richard B. Dunn Solar Telescope (DST), which specializes in solar high resolution imaging and spectroscopy. The tower portion rises 13 stories above ground level. Like an iceberg, only a part of the telescope's bulk is visible above ground. Approximately 220 feet of this telescope lie out of sight underground. The whole building from top to bottom is a single instrument. The telescope's entire optical system - from the top of the tower to the base of its underground portion, plus the 40 foot diameter observing room floor - is suspended from the top of the Tower by a mercury float bearing.

The entire optical and mechanical structure of the telescope is longer than a football field and weighs over 250 tons. The DST is quite a simple instrument, consisting of three principal mirrors, two windows and an evacuated optical path. A unique instrument at the focus of the DST is the Universal Birefringent Filter, or UBF. (There are only three other similar filters in the world.) It can be tuned to look at any particular visible color in the Sun's spectrum.

It was exciting to help out the visiting solar physicists set up the optical bench and diffraction gratings in order to observe reversals of the magnetic Zeeman lines on the sun. Working on this project was a graduate student from UH who had worked at Haleakala High Altitude Observatory Site on Maui. He was kind enough to show us around. It was interesting to see a large version of the Swedish solar telescope similar to the one I helped calibrate for the Transit of Venus in La Palma, Canary Islands.

The Apache Point and National Solar Observatories were the one of the high points of our New Mexico astronomy adventure. The weather cooperated and the view was spectacular from the top of the mountain. How could it get better than this? Well, our next destination was the Very Large Array near Socorro, New Mexico, the largest radio telescope in the world. Just think…10 years after "Contact"!

VLA Today

10 Years after "Contact"

By Bob McGown & Dareth Murray

After finding some astronomical-looking petroglyphs at Three Rivers Petroglyph Site near Alamogordo, New Mexico, our astronomical journey next took us to the Valley of Fire, a great lava flow north of White Sands Missile Range. From the lava butte viewpoint in the Valley of Fire, one can view the Trinity Site where the first atomic test was held. Our destination for the day was the 27 radio telescopes of the Very Large Array (VLA.) in the high plains of San Augustin, 50 miles west of Socorro, New Mexico. Dave Woods, chief technician at Apache Point Observatory, had told us about Rudy and his famous ice cream café in Magdalena on the way to the VLA. We pulled into Rudy's place about 3 p.m. It is a historic building of brick, built in 1908, and originally a bank in the heydays of the silver mining boom. Rudy has a huge collection of memorabilia from the past including some Monroe astronomical calculators and short wave radios. He has worked at the VLA for 30 years on cryogenics. We discussed the radio engineering of the VLA and he explained that the VLA is being up-graded to a new fiber optic system from the old waveguides for each one of the positions of the VLA.

After enjoying some ice cream, Dareth & I headed off to the site of the most powerful radio telescope on the planet. Flanking us on the left were the Magdalena Mountains, which we had learned would be the site of a new observatory co-built by the U.S. Air Force and a consortium of universities. The road to the new observatory is just now being constructed and is typical of a classic observatory road with many switchbacks cut into the side of Magdalena Ridge. It was a short drive from Magdelena to the VLA. As we drove between the huge 82' dishes of the VLA, we spotted a herd of 10-12 antelope grazing by the road. The largest pronghorn buck was very protective of his herd and watched us carefully as we photographed the closely aligned dishes (and took a few–photographic–shots of the herd too.)

(Continued on page 10)

VLA Today (Continued from page 9)

Picture courtesy of Tiffany Borders.

The VLA was the site where the movie "Contact" was filmed. We instantly recognized it from seeing the movie. Many of the VLA scientists and staff were extras for the movie and remember it well. For the movie a set "control room" was built in the center of the telescope field so that the facility could keep doing research in real time. The movie was released 10 years ago and Carl Sagan's classic science fiction novel debuted 20 years ago. The weather was partly cloudy - almost threatening rain. We heard thunder and saw a few lightening bolts. We wondered how the dishes were protected from lightening strikes.

The picture above was taken by Tiffany showing the glowing rainbow framed by two VLA dishes.

Going straight to the control room, past the Visitor Center, we were met by Tiffany Borders, a physics graduate student intern. She is one of six who monitor the equipment and watch for glitches and malfunctioning antennas. She showed us around the facility including the Faraday Cage where the computers were located. It has to be climate controlled at a cool temperature because the computers would overheat and crash with the huge amount of data coming in. We asked about the possibility of lightening and she said that it could be a problem! There are lightening rods on the dishes but sometimes they still get hit and go down. We noticed that the storm had passed and a double rainbow could be seen between two dishes.

Dedicated in 1980, the $78 million VLA was built by the National Science Foundation and is operated by the National Radio Astronomy Observatory. 27 dishes, weighing 230 tons each, move along three sets of railroad tracks, which are laid out in the shape of a Y, called an array. The VLA took 10 years to plan, 3 years to get funding from Congress and prepare the construction site and 6 years to build. Used by astronomers throughout the world, a typical experiment requires about 12 hours observing time and several weeks of computer processing. About 50 experiments are run each month.

The picture above shows the "spare" dish and transport vehicle in the "telescope barn" which towers 8 stories above the desert floor. A light dusting of snow had fallen when I came back the next day to get more pictures

Tiffany pointed out the beta test site (directly below the control room) for a new facility in the Atacama Desert in Chile called the Atacama Large Millimeter Array, ALMA. Three dishes are being tested: Japanese, European and North American. The dish that tests most productively will be selected for the new radio observatory planned to be built in the next few years, after funding is established. Ken Ramey, a software engineer with ALMA, was comparing the three dishes by putting them through reversing cycles 24/7. The most reliable

(Continued on page 11)

VLA TODAY *(Continued from page 10)*

equipment is needed for the ALMA remote location.

Atacama Large Millimeter Array in test mode

The Visitor Center has many informative displays, one of which explained how it works.

1. Antennas - receive and amplify the cosmic radio signal
2. Wave-Guide – transmits the signal to the control building (this is in the process of being upgraded to fiber optics, but it is a huge project)
3. Electronics room – filters the signals
4. Correlator – combines the signals of each antenna with all the others – 560 billion combinations take place each second!
5. Computers – produce images from the combined signals
6. Video Displays – provide the astronomers with a visual way of "seeing" the radio sky

It was a dark sky when we drove back and we were rewarded with some spectacular flashes of lightening. We awoke the next morning in Magdalena to falling snow! Bob went back for more pictures of the VLA early in the morning and then we decided to investigate the Kelly mine, an old silver mine up in the hills. The snow and bad road put a damper on our excursion and it was not helped by my falling in the mud on the way back! After cleaning up in Magdalena, we decided to head back to El Paso and home. We stopped in Truth or Consequences for lunch. Yes, it is really named after the TV show. We had brunch at a delightful vegetarian place called the "White Coyote." Driving through a fierce hailstorm that left the freeway two inches white (we all slowed down nearly to a stop!) we finally arrived back at El Paso – it was full circle in five days. A repeat trip is necessary because five days is not enough. After spending the night on the 82" Otto Struve, we knew that we would return to peer through that 107" scope at McDonald!

Imaging the Sky 2005 Conference

Astroimaging with dedicated CCD cameras & digital SLR cameras What's right for you?

Large aperture telescopes extend an astronomer's ability to observe fainter objects and fainter details. And like wise, digital astroimaging provides the same benefit to the amateur astronomer. Digital astroimaging provides an excellent way to observe new objects and fainter details with smaller optics. Astroimaging extends an astronomer's ability to enjoy observing the universe.

There are many types of cameras, lens, telescopes, mounts, filters and software programs that are used in astroimaging. This year's conference focuses on astroimaging and image processing techniques using digital SLR cameras and cooled CCD cameras. Both of these cameras extend an astronomer's observing capabilities. You will learn how to obtain the best imaging performance using these cameras and how they are similar and different. Image processing examples will be shown using Photoshop, AIP4WIN V2 and ImagesPlus.

Weather permitting there will be evening imaging demonstrations. A conference CD-ROM with presentations, reference materials and software is provided to each attendee. The conference is sponsored by Mt. Hood Community College Science Club and Planetarium Sky Theater.

Date: Saturday, July 23, 2005, 8:00 am to Midnight

Location: Visual Arts Theater, Mt. Hood Community College (MHCC), 26000 SE Stark Street, Gresham, Oregon

Registration: Register early because seating is limited. Registration is $30.00 by June 31, 2004 and in July it is $40.00. To register send your name, address, email address and registration money (check made out to Imaging The Sky) to Imaging The Sky Conference, Rick Kang, PO Box 5795, Eugene, OR 97405

Current Imaging the Sky conference information is at http://www.stargazing.net/david/ITS

OMSI Summer Solstice Celebration

June 11, 2005 - 8:30pm - OMSI East Parking Lot

Summer officially begins with the summer solstice on Monday, June 20 at 11:46pm PDT. On Saturday evening, June 11, OMSI, Rose City Astronomers and Vancouver Sidewalk Astronomers will celebrate the summer solstice and the beginning of summer with a Star Party! The free event starts at 8:30pm at the OMSI east parking area, located at 1945 SE Water Ave.

Members of RCA and VSA will make their telescopes available and OMSI Planetarium Manager Jim Todd will present informal talks on the occurrence. From beginners to experts of all ages, visitors will have the opportunity to view the stars and other objects through a variety of telescopes.

Viewing highlights includes the planet Saturn, Jupiter, Nebulae, clusters, and more! For possible weather cancellation, please call 503.797.4610 after 3:00pm on June 11 for the latest information.

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

June 2005

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		

June 2005

Jun 4	Sat	RCA Star Party	Larch Mountain	
Jun 6	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Jun 11	Sat	OMSI Summer Solstice S.P.	OMSI East Parking Lot	
Jun 18	Sat	Telescope Workshop	Swan Island	10am-3pm
Jun 20	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Jun 23	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

July 2005

Jul 9	Sat	RCA Star Party	White River Canyon	
Jul 11	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Jul 16	Sat	Lunar Viewing	OMSI East Parking Lot	
Jul 18	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Jul 21	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm
Jul 30	Sat	RCA Star Party	White River Canyon	

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 7 Newsletter of the Rose City Astronomers July, 2005

RCA July General Meeting

"One Leg at a Time, How the Great Astronomers Put on Their Pants."

Presented By David Powell

Did you know that Caroline Herschel discovered at least eight more comets than her famous brother William? Hubble was a good republican and could not stand Franklin Roosevelt! This presentation is a history detailing the major accomplishments and showing the human side of several of the great men and women of astronomy.

To find out more interesting facts and tidbits, come to a light hearted presentation; you might just learn something.

Tyco Brahe owned a dwarf! Kepler was a hypochondriac! These historic figures made important contributions and laid the foundations of our understating of the universe. Be sure to listen closely, as there will be a test, with fabulous prizes for those who pass. This presentation was originally given at the 2004 Oregon Star Party and has since been modified and improved.

All are Welcome!

Monday July 18

Social Gathering: 7 pm.

Meeting Begins: 7:30 pm.

Location: OMSI Auditorium

Photo from June General Meeting by Jan Keiski

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
July 6, 5:04 AM PDT	July 14, 8:22 AM. PDT	July 21, 4:02 AM. PDT	July 27, 8:21 PM. PDT

Club Officers			
President	Carol Huston	(503) 629-8809	StarsCarol@comcast.net
Past President	Peter Abrahams	(503) 699-1056	telscope@europa.com
VP Membership	Ken Hose	(503) 591-5585	khose@comcast.net
VP Observing	Matt Vartanian	(503) 244-5023	matt@vartanian.net
VP Community Affairs	Jeff Sponaugle	(503) 590-5522	jsponaugle@kryptiq.com
VP, Programming	Matt Brewster	(503) 740-2329	m_brewster@juno.com
Treasurer	Ginny Pitts	(360) 737-0569	vepitts@comcast.net
Assistant Treasurer	Ed Epp	(503) 284-5834	epp@zdome.net
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Alcor, Historian	Dale Fenske	(503) 256-1840	fenskedw@spiritone.com
Library Director	Jan Keiski	(503) 539-4566	jikeiski@comcast.net
Telescope Director	Greg Rohde	(503) 629-5475	gfrohde2000@yahoo.com
Observing Site Director	David Nemo	(503) 224-6366	david6366@msn.com
Media Director	Patton Echols	(503) 936-4270	mpecho@rdrop.com
IDA Liaison	Bob McGown	(503) 244-0078	bobmcgown@comcast.net
OSP Liaison	Dareth Murray	(503) 957-4499	darethlee@comcast.net
Camp Hancock Liaison	Glenn Graham	(503) 579-1141	the.grahams@verizon.net
Subscription Director	Larry Godsey	(503) 675-5217	larrygodsey@comcast.net
SIG Director	Margaret McCrea	(503) 232-7636	mmcrea@nwlink.com
Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.org

RCA MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is reduced rate subscriptions to Sky & Telescope and Astronomy magazines. Sky & Telescope Magazine is $32.95 for one year. Astronomy magazine is $29 for one year or $55 for two years. **For more information go to the RCA web site and click on any of the links for magazines.**

Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings. Please Note: Allow two months for your subscription to be renewed. Sky & Telescope Store Discount.

RCA members who subscribe to Sky & Telescope are entitled to a 10% discount at the Sky & Telescope online store at: http://skyandtelescope.com/shopsky To get your discount, enter Rose City Astronomers when prompted for your club name during checkout at the Sky & Telescope online store.

RCA President's Message

By Carol Huston

Astronomy on the internet is a whole science library through your computer. The NASA web site (http://www.nasa.gov/home/) has a wealth of information for kids, students, educators, researchers, amateur astronomers, and anyone with a genuine interest in the space around us. Their news and events section keeps up to date with current missions, displaying pictures and animated sequences of activities. There is a whole section on the Deep Impact Mission, with many pictures and good explanations of the events being observed. Taking a stroll through this website can provide a lifetime of interesting astronomy information. Enjoy your trip!

Apollo 4 Launch, Courtesy NASA

ASTROPHYSICS / COSMOLOGY SIG

Date/Time: Thursday, July 21, 7 PM.

Speaker: Lamont Brock

Topic: "Ancient Astronomy"

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

Contact: Bob McGown (503-244-0078)

or Dareth Murray, (503-957-4499) for more information.

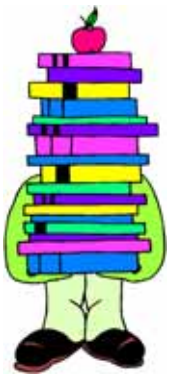
We are looking for speakers to lead a discussion. What is your favorite topic in Astrophysics or Cosmology? Let's talk about it! Call Bob at 503-244-0078 or email him: bobmcgown@comcast.net

Telescope Workshop

Date/Time: Saturday, July 30, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

Contact: John DeLacy <johncdelacy@comcast.net> for more information



RCA LIBRARY

The Rose City Astronomers maintains a comprehensive club library of astronomy related articles, books, CD-ROMs and videos. These items can be borrowed by members through check-out at the general meetings for a period of one month with renewals available by phone or e-mail to the club library director,

Jan Keiski (jikeiski@comcast.net)
503-539-4566

Visit the RCA library web page at:
http://www.rca-omsi.org/library.htm

Observing Site Committee

To lead and coordinate efforts of the Rose City Astronomers (RCA) in securing and managing a variety of observing sites for private use by members, and for community outreach and special events organized by the RCA.

Please Support the Site Fund RAFFLE at the Club Meeting by buying tickets or donating prizes. CASH accepted anytime!

Please Check
http://nemoworld.com/RCA/sitehome.htm
for more information.

Or Contact: David Nemo
<david6366@msn.com>

Orientation Meeting for New Members

If you have joined our club recently, or have little experience with astronomy, you might be uncomfortable about seeking answers to any number or questions: what to buy, what to see, when and where to look, what does NGC stand for, and other questions that reveal your inexperience. All of us in the club began there too, so let us help you with a new-member* orientation at **4 pm, Sunday July 31st** at the home of Jim Reilly, the RCA New-Member Advisor. We will spend a few hours talking about astronomy: I'll fill you in on some of my astro-experiences (including hazy memories of when I was a new member) and you can ask questions about this great hobby. I will not have every answer on the spot, but together we can figure out the next person to ask & we'll find the answers!

Some of the topics we'll cover:

- Club resources and how to access them.
- How to prepare for and participate in star parties.
- Helpful tips on what you'll need to get started.
- Introduction to observing programs.
- Generic review of equipment (with props!).
- Volunteer opportunities with RCA.
- Question and Answer

Please RSVP by contacting Jim Reilly (503-493-2386, or jimrpdx@granitic.net); let me know how many are coming with you so I can grab the right number of chairs. Remember also to bring along your new-member packet for reference; I'll have a few spares, just in case. This informal session will be geared to helping you make the most out of your participation in RCA, so feel free to pass along any advance questions and topics when you RSVP.

** You don't have to be absolutely new! Slightly used members are also welcome.*

MARKET PLACE

Run your non-commercial astronomy related classified ad in the monthly Gazette. Rates are reasonable (free!)

For Sale: Meade 8" SCT, f/10; focal length=2000mm. Equatorial fork mount, wedge with bubble level and DC motor on heavy duty field tripod. Superb optics. Telrad + 6x30 finder. 1.25 diagonal. Dew shield and dew ring. Eyepiece holder. 25mm eyepiece. Polar alignment tool and instructions. Dust caps. Padded storage/carrying case. Complete set-up, ready-to-go. $1400. Call Carol @ 503-629-8809 or email StarsCarol@comcast.net.

Awards

Jonathon Scott
Binocular Messier Award #671
and
Telescopic Messier Award #2220

For more info visit:
http://www.astroleague.org/al/obsclubs/obsclub.html

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http://www.stargazing.net/david/ITS

OREGON STAR PARTY 2005

It's July, and thoughts turn to....dark nights and sunny days and it's time to get your early registration done for OSP! Yes, online registration for what is a nationally recognized dark sky event, the 2005 Oregon Star Party, is now up and ready for you 24/7. OSP is scheduled for September 1-4, 2005, over the Labor Day weekend. You can register either online or via snail mail by visiting the web site's registration link at http://www.oregonstarparty.org/2005reginfo.htm

For those who have yet to experience OSP, you can review stories from the prior years, and do some planning for this year right there on the web site. OSP is held in the Ochoco Forest, about an hour outside of Prineville OR. The site is remote, and the dark skies have drawn visitors from the Southwest, Midwest and East coast annually. For most RCA members, it is about a 4.5 hour drive from the Rose Garden. So mark your calendars, bookmark your browsers, and get ahead of the crowd by signing up for the 2005 OSP.

Remember, while Mars will not have as large a disk as in 2003, it will be higher in the sky, allowing for a good chance at observing our close neighbor in great detail. During OSP it should show 14.2 arc seconds in diameter-quite a show for us. So please consider joining us for both excellent planetary and deep sky observing with about 800-1000 of your closest friends. We are able to partake of good food, espressos, onsite showers, vendors with tons of astro gear, and a great array of speakers. And while you visit our web site, please consider joining the OSP crew as a volunteer. It is a great way to contribute to the fun, and to meet a number of new friends.

See you in September!

BOARD MEETING MINUTES

June 6, 2005
OMSI Classroom 1
Ken Cone

VP of Observing Matt Vartanian called the meeting to order at 7 pm.

Board members present: Matt Brewster, Ken Cone, Patton Echols, Ed Epp, Dale Fenske, Larry Godsey, Ken Hose, Jan Keiski, Bob McGown, Dareth Murray, David Nemo, Ginny Pitts, Jim Reilly, Greg Rohde, Matt Vartanian

Board Reports:

- Secretary's Report – Ken Cone: Quorum (12) met with 15 voting members present.
- Treasurer's Report – Ginny Pitts: Cash in accounts $14,306.16
- VP Programming – Matt Brewster: Dave Powell will be speaking in July on famous astronomers. Jeffrey Barnes will speak in August on Mars Probes, he has worked on Mars probes since Viking. Jeffery is an atmospheric scientist at OSU and chief atmospheric investigator for Mars Pathfinder.
- VP Observing – Matt Vartanian: next star party is White river canyon July 9th.
- VP Community Affairs – Jeff Sponaugle: no report
- VP Membership – Ken Hose: 18 new members and renewals from May meeting for a total of $534. There are 317 member families.
- New Member Advisor – Jim Reilly: nominal, 31 July next orientation meeting.
- Media Director – Patton: One contact, a California reporter wanted to know about Deep Impact. Discussion about Media Director responsibilities.
- Sales – Sameer Ruiwale: no report
- Book Library – Jan Keiski: Nominal
- Telescope Library – Greg Rohde: one additional telescope donation, a refractor. New 6" dob one more build session to finish. Club scope #7 going up for sale, it is a Celestron C8 all manual. More details in the Gazette.
- SIGs – Margaret McCrea: no report
- IDA – Bob McGown: Bob volunteered to be Oregon State IDA liaison when Rick Kang stepped down. We need others in the club to do IDA presentations. Bob will be giving an all day meteor shower/IDA space workshop for CampWWauk'n'Sun in Happy valley. There is a generic meteor shower calendar that Bob created that we can hand out.
- Magazine Subscriptions – Larry Godsey: $120.90 in magazine subscriptions for May.
- Gazette Editor – Larry Deal: no report
- Webmaster – Dareth Murray: committee site is now operational.
- OMSI – Carol Huston: no report
- Site Committee Director – David Nemo:

  Following discussion by the Board at the April meeting, the proposed Acquisition Plan was revised by the Observing Site Committee to reflect the priorities expressed by the Board and clarify how a proposal for a pursuing a specific site will include information desired by the Board in order to make a decision. Basically, the Site Committee will review a potential site and if found worthy and meeting search criteria, will prepare a proposal and detailed acquisition plan to the Board. The Plan also clearly states that the Board will be responsible for approving any purchase offer and related fundraising and management plan. Motion by Patton and second by Ginny to approve the site committee acquisition plan. Motion passed unanimously.
- Other: JRCA, Copying, Misc: no report
- Alcor/Historian – Dale: annual bill based on average membership. John Jardeen Goss is new AL
- membership secretary. Bob will be attending the AL board meeting in August.
- Astronomical League- Bob McGown: Last year, Bob started researching what it would take for RCA to host the AL conference in Portland. He found out that Kansas City was holding it in 2005, but suggested that maybe RCA might want to bid for 2006 or 2007. Plan to have a board e-mail discussion in the next month to review.

Old Business

- Phone Line Report – Bob: One phone call a person showed up at cosmology SIG.
- June 7 through July 4 Dareth:
- July 11 through Aug1: Carol
- Ginny reviewed the annual budget. Motion to accept the budget moved by Dale, seconded by Ken H. Motion carried.

New Business

- Bob would like to discuss membership dues at the July board meeting.

Meeting adjourned at 9:00 pm.

Variable Star Observing

By Tim Crawford

Variable stars are simply stars that change in brightness or magnitude.

Variable Star Observers can begin their scientific contributions with as little equipment as a binocular and a Field Chart scaled for binoculars that has been created for this purpose by the AAVSO:

http://www.aavso.org/

Professional Astronomers and the large observatories have little time to devote to the collection of brightness data on the many thousands of variable stars.

Therefore, for the most part, the Astrophysicist's are pretty much dependent upon world wide amateur contributors to report the necessary data to the 94 year old AAVSO organization to help them better understand the physical properties, distance and evolution of different types of stars (there are several other groups around the world that also collect this data). World wide, last year, the AAVSO received reports from 755 observers World wide with 275 of those observers being in the USA.

It is great experience when you make your first magnitude estimate of a variable star and even more satisfying when you make your first report to the AAVSO database as you realize that you really are making a worthwhile scientific contribution.

I really enjoy this activity and find it to be both fun and rewarding. It is an activity that you can make as few or as many observations as your time and inclination permit with the knowledge that each one really is an important contribution to a Star's database.

Observers range from those making visual magnitude estimates of variable stars using binoculars and small telescopes to those using large scopes with computerized analysis of CCD images. There are stars in need of observations for every level of your equipment and experience.

If you have an interest I would encourage you to attend the Beginning Variable Star presentation that I will be making (with Jim Jones) at the OSP on Saturday, September 3rd at 2:00 PM (check schedule there). One of the area's covered will be providing attendees with an AAVSO chart for W Cyg, a bright variable, then walking everyone through the steps of making visual magnitude estimates using this chart.

This same chart can also be used that very evening for making real time observations with binoculars and small telescopes. I will also bring a few charts of a dimmer star for those that want to use their larger scopes or even. possibly their CCD cameras to try their hand at making some estimates.

Speaking of CCD cameras, for those that have an interest in learning about getting started doing Variable Star Observing, using their CCD camera's, Jim Jones and I will make arrangements to get together with you at the OSP if you will let us know of your interest in advance so that we can contact you with a time and place.

Tim Crawford: tcarchcape@yahoo.com

Jim Jones: nt7t@comcast.net

While you do not have to be a member of the AAVSO to make magnitude estimate reports you do need to have the organization assign you reporting Initials before you can upload any data.

This is a pretty simple process requiring only the filling out of a registration form (no fees involved) and then waiting a few days for your observer initials to be emailed to you:

www.aavso.org/observing/submit/apply.shtml

Whether or not you attend the Workshop at the OSP you should acquire a copy of the AAVSO's Manual for Visual Observing of Variable Stars. You can either order one from the AAVSO or down load a free PDF file or simply read it on line:

http://www.aavso.org/publications/manual/

In addition to help from Jim and I, the AAVSO has a number of email groups available to answer your questions and help you along the way; on Thursdays there is also an all day Chat Room open and everyone is invited to attend and ask questions. Remember that there is no such thing as a dumb question!

For those of you with an interest in using your CCD camera for Variable Star observing the CCD manual is also available at no cost for downloading or reading on line:

www.aavso.org/observing/programs/ccd/manual/

This is a very rewarding part of our hobby and I hope that some of you will be willing to give Variable Star observing a try. The scientific community does very much depend upon the reported observations of amateurs like you and me and we all can make valuable contributions and have some fun along the way.

Last Year, only four observers reported any data from Oregon. Clear Skies

THE OBSERVER'S CORNER

Howard Banich

July is the beginning of reliably clear weather in the Pacific Northwest and the first month of the big star parties. The observing season finally begins and hopeful thoughts of dark nights and great observing brighten our days. If you've been at this for at few years you might be looking forward to seeing some of your favorite sights, or if you're a newbie you might be pondering what new wonders may be in store. In either case, having an observing list is a great idea because you'll know ahead of time exactly what you'll be looking for rather than scratching your head on that wonderfully dark and starry night wondering "what next?"

Many goto scopes have built in observing routines that can take you on a tour of tonight's best objects, a great feature especially if you don't have much time to observe or don't know the sky well yet. You'll quickly get a sampling of a variety of objects, which can be a most satisfying way to spend a night under the stars.

As a long time star hopper I prefer to track down objects by manually moving my telescope, with only my star charts and a well aligned Telrad as my guides. This method is quickly becoming as quaint as having a rotary telephone but I like it. But rather than extolling the virtues of star hopping at this point I'll merely point out that this method encourages getting to know the sky and promotes the making of observing lists.

If you have a goto scope and don't use the observing routines, or have done so and now want to branch out, an observing list is a handy tool. You'll need to do a little homework though.

Two good places to start are Sky & Telescope and Astronomy magazines. Each issue has at least one article on suitable and perhaps lesser known objects that are within reach of amateur scopes. I particularly like the Deep Sky Wonders articles by Sue French in S&T, as she consistently writes about intriguing but accessible objects.

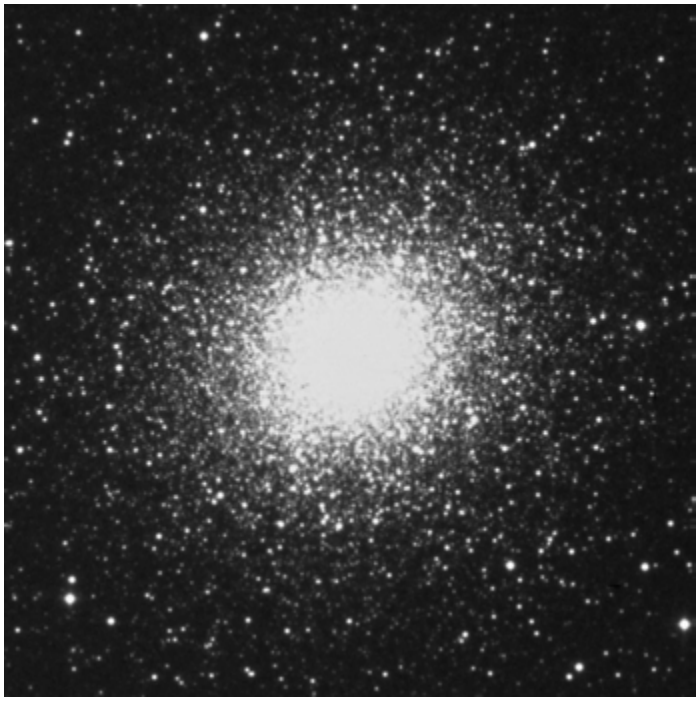
You can find on-line articles as well, two examples being Steve Coe's articles at http://www.cloudynights.com/item.php?item_id=1077 and Tom Trusock's articles at http://www.cloudynights.com/item.php?item_id=1073. Browsing through Burnham's Celestial Handbook and The Night Sky Observer's Guide is a great way to come up with new targets, but you'll strike the mother-load by working on one of the Astronomical League's observing "club" lists. If I've counted correctly they have 24 lists to choose from and they're geared for the total beginner to the seasoned veteran. Check out their page at http://www.astroleague.org/observing.html for details.

By the way, marking the location of each object on your star charts before observing greatly reduces potential frustration if you star hop.

Getting away from lists per se, another observing strategy is to pick a constellation and observe every object plotted on your atlas within its boundaries. Or, pick a page from the Uranometria or Millennium star atlas. This can keep you enjoyably busy but you'll likely be looking for some very faint and difficult objects.

An observing suggestion of my own for July nights is to observe the brightest globular clusters visible from the northern hemisphere and decide for yourself which is the most stunning. M13 is usually given the crown, but that's just what the experts say. M13 is conveniently well placed near the zenith on July evenings, but check out M5 in Serpens Caput before it gets too low in the west, and then have a look at M15 in Pegasus as is rises high enough in the east for a good look. Maybe the choice isn't so obvious now, and to muddy the water a bit more let's throw in M22 in Sagittarius. Hmmm.

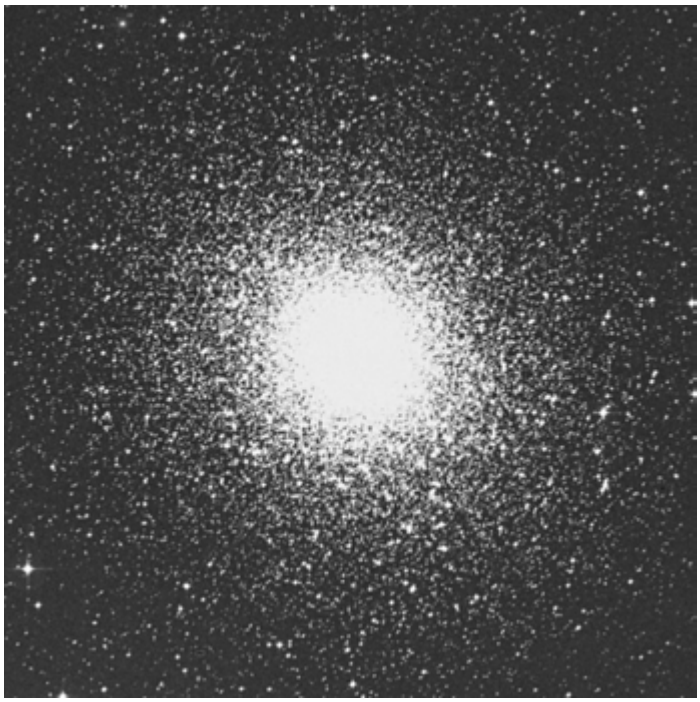
I know which one I find most appealing, but give this comparison a go and see what you think. If possible, try this with a few different scopes over time and see if you change your mind.



M13, globular cluster. Magnitude 5.8, diameter 20 arc minutes. RA 16 hours 41minutes, Declination +36 degrees, 27 minutes.

(Continued on page 8)

The Observers Corner *(Continued from page 7)*



M5, globular cluster. Magnitude 5.7, diameter 23 arc minutes. RA 15 hours 18 minutes, Declination +2 degrees, 5 minutes.

M15, globular cluster. Magnitude 6.3, diameter 18 arc minutes. RA 21 hours 30 minutes, Declination +12 degrees, 10 minutes

M22, globular cluster. Magnitude 5.2, diameter 32 arc minutes. RA 18 hours 36 minutes, Declination –23 degrees, 54 minutes.

The above photos are all DSS images at the same scale, 20 arc minutes square, to give a sense of their relative sizes. But a photo doesn't accurately capture what you'll see through the eyepiece so fortunately you'll still have to look for yourself to decide which you like best.

There's always a chance that you'll like some other northern hemisphere globular best (remember, Omega Centauri and 47 Tucanae are southern hemisphere objects) and that's great too. Every time I've mentioned this comparison someone asks "what about M92?" or "hey, M3 is pretty spectacular too!". No argument here, but it's difficult to compare three things let alone four or more, so for now I've limited the Great Globular Comparison to these four.

Good luck, have fun and if you bump into me at a star party let me know what you think.

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 8

By John W. Siple

Cave Optical Co. of Long Beach, Calif. was in business for 30 years (1950-80), and during that time their Astrola® line of telescopes became world famous. Meticulous attention to fine detail generated Cassegrains, refractors and Newtonian reflectors coveted by past and current generations alike, and they set a standard of excellence hard-to-equal. The success in large part can be attributed to the superb hand-figured primary mirrors, especially those fabricated by an optician named Alika K. Herring. An article about Cave Optical Co. by O. Richard Norton of Bend, Oregon, is found on pages 88-93 of the August 1994 issue of Sky & Telescope magazine. A follow-up article about Mr. Herring is on pages 81-86 of the May 1995 issue. The tradition of producing ultra-fine mirrors was continued when Larry Hardin, former Cave employee and owner of Hardin Optical Co. of Bandon, Oregon, purchased the Astrola® name from Thomas R. Cave, Jr. in October 1999.

Front cover of the Cave Optical Co. 1967/68 catalog. Pictured is their 10" Cassegrain Transportable Model.

A series of Cassegrain telescopes 8" through 24" apertures were sold, although anything 16" and over was called a "Custom Research Observatory Cassegrain" by Cave. The 10" f/16.5 outfit, of Dall-Kirkham configuration (see diagram below), was first introduced by the company in 1961. An instrument sitting on a 4-ft. tall extruded aluminum pier with three detachable legs is most commonly seen, although a solid oak tripod with matching accessory tray was offered as an option. Schools and home observatories could buy Cave's 10" Observatory Model, identical to the other versions except "for the inclusion of a heavy-duty permanent pier that is of steel rectangular shape, 4 ½ to 5 feet in height, heliarc fabricated, four holes for steel bolts, located at base of pier."

The 10" f/16.5 Astrola® displayed on the catalog cover has an equatorial mounting with 1.5" axes, dual-axis motor drives, frequency generator, solid brass setting circles, chrome-plated steel counterweights and a durable, stunning porcelainized gray Parks fiberglass tube with a sliding counterpoise weight. Cave Optical Co. had the habit of using only the finest quality components in their finished telescopes; a Unitron 1 ¼ inch focuser and matching 10X42mm viewfinder often complements the optical equipment. A stock 8X50mm Astrola® finder and 60mm f/12 guide scope are also mounted on the main-tube barrel. A full range of powers (120X to 600X) is gleaned from the five good oculars. Some units came with a fully-rotating ring system, although the instrument shown at above right has a fixed cradle position. Cave's 1967/68 catalog has the scope listed at $1795.00, which is twice as expensive as their "deluxe" 10" Newtonians.

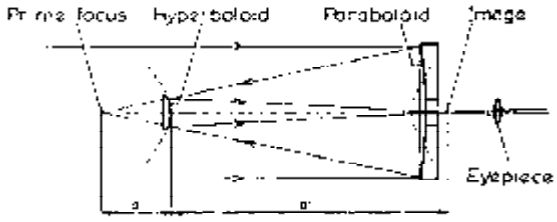


Fig. 4.4. Ray path for a Cassegrain telescope. Reproduced from B. V. Barlow, "Ray path and light losses," The Astronomical Telescope, p. 50, Springer-Verlag, New York, 1975. With kind permission of Springer Science and Business Media.

Cave Optical Co. characteristically made its own primary mirrors at the Long Beach facility, but they did purchase Dall-Kirkham sets from Three "B" Optical Co. of Mars, Pa., a telescope firm known for its quality (and sometimes exotic) products. 3-B Optical was established by three former employees of J. W. Fecker Optical Co. The company ran numerous small advertisements for their items in Sky & Telescope in the early 1960s, with the 10" matched set priced at $290. Interestingly (and appropriately) they titled the ads with "MIRRORS FROM MARS!" Thomas R. Cave, Jr. (Feb. 3, 1923-Jun. 4, 2003), owner of Cave Optical Co., was a celebrated Mars observer, so many of the company's completed Cassegrains have that "hidden" connotation.

In a Classical Cassegrain system the primary mirror is parabolic and the secondary convex hyperbolic. The Dall-Kirkham is a simplified version using an ellipsoidal primary and spherical secondary where the curves are more easily generated. However, the shape of the primary prohibits converting to, or adding on, a Newtonian focus. This type of optic has severe curvature of field, and is subject to strong off-axis coma approximately two to six times greater than that of a standard Cassegrain reflector. These negative aspects are balanced by the presence of only very slight amounts of spherical aberration and astigmatism. The design was first proposed by master optician Horace Dall of Luton, England in 1928, and independently by Alan R. Kirkham of the Amateur Telescope Makers and Astronomers of Tacoma (see Scientific American's ATM Book 1, pages 264-270, for more detailed information about Ronchi testing). The perforated (center-holed) 10" f/4.1 Pyrex primary mirror in the Cave telescope is held in an adjustable mirror cell, which in turn is part of a massive, precisely-machined endplate. The secondary mirror provides a 4.05 amplification to give the compressed system a focal ratio of f/16.5 (and a corresponding focal length of 4200mm!). To help block stray light in the Cave instrument is an integral 6 ½" long (variable) light baffle, which is just an internal extension of the focusing tube.

(Continued on page 10)

A Sampling of Telescopes *(Continued from page 9)*

The catalog gives a resolving power of 0.45 seconds of arc and a threshold magnitude of 14.7 for the 10" telescope. The off-axis coma limits this telescope to narrow-angle viewing, ideal for splitting "difficult" double stars and for obtaining extremely close up lunar and planetary views. Dall-Kirkham mirrors are capable of producing some of the finest and sharpest images possible in a folded lightpath telescope. This is proven quite convincingly by observing Jupiter; in a Unitron 40mm Monochromatic ocular (105X) the cream-colored planet looms uncommonly large and detail in the darker belts is extraordinarily well-defined. Ganymede, with an actual diameter of 5,260 km and a magnitude of 4.6 visually dominates the Galilean satellites, and at higher powers renders a perceptible 1.7 arc-second disk.

The constellation Bootes is a logical target for the big Cassegrain, since there are scores of close double stars scattered throughout its domain. Known for its richness in colors is Xi Bootis (mags. 4.7, 7.0; sep. 6.6"; p.a. 318º), where the primary star is a beautiful yellow and the gravitationally-bound secondary glows with a strong reddish-violet hue. Using a Clave Paris 10mm Plossl eyepiece (419X) the pair shows the expected wide apparent separation, and the contrast of colors is simply outstanding! Similarly the double Pi Bootis (mags. 4.9, 5.8; sep. 5.6"; p.a. 108º) is an easy object in an 8mm Clave (524X), but both stars shine a simple bluish-white instead. The real showpiece of the region is Izar or Epsilon Bootis (mags. 2.9, 4.9; sep. 2.8"; p.a. 339º), a magnificent pair of golden yellow and bluish suns having a surprisingly large amount of separation in the Cave scope. Much tougher is Zeta Bootis (mags. 4.5, 4.6; sep. 0.8"; p.a. 300º), a double star starting to approach the resolution limit of the telescope. The two evenly-matched, pure white diffraction disks are nearly in contact as viewed through the 10mm Clave eyepiece.

The ultimate test lies with Gamma Virginis or Porrima (named in honor of two ancient goddesses of prophecy), which has been in close conjunction with the planet Jupiter this year. The separation between the twin pale yellow suns comprising the Porrima star system was estimated to be at a minimum in May 2005, possibly amounting to only a few tenths of arc-seconds. Although magnifications in excess of 1000X in relatively steady skies on the night of June 7, 2005 were brought to bear on this object, the 10" Cassegrain failed to resolve the star into its two components. An article about the premature periastron of this duo's orbital dance is found on pages 74-75 of the June 2005 issue of Sky & Telescope.

Cave Optical Co. 10" Cassegrain tube assembly remounted on a modified Meade Research Grade Equatorial for greater stability. The mirrors are from 3-B Optical Co. A work of art!

The Cave Cassegrain works wonderfully well on deep-sky objects, and the huge image scale provides a bird's-eye view of many popular globular star clusters and planetary nebulae. For example, The Great Globular Star Cluster in Hercules, M13, fills the entire central portion of a Tele Vue 24mm Wide Field eyepiece. The observer peers down onto a mass of many hundreds of resolved suns, and the telescope certainly gives the impression of that "spacewalk feel." Also in Hercules resides the planetary nebula NGC 6210 (dubbed the "Turtle Nebula"), a noteworthy object often passed over in favor of the constellation's other luminaries. This small, bluish 30" X 20" ellipse of light is easily detectable at low power, and is oriented E-W. The magnitude 12.9 central star is fleetingly seen, embedded in the strong, brighter magnitude 8.8 glow of the planetary nebula itself. In the same low power field of view 20' to the SSW of NGC 6210 is the triple star ∑2094 (AB: mags. 7.4, 7.7; sep. 1.3"; p.a. 77º). The close pair of yellow stars is cleanly split at 419X, and the "distant" third component of the system (AC: mag. 11.0; sep. 24.9"; p.a. 312º), is picked up easily.

For owners of Cave Astrola® telescopes there are several excellent websites. One of the most informative is the Cave Astrola Owners/ Enthusiasts Exchange, or www.omahaastro.com/cave/, where current and past owners exchange information about their instruments. There are numerous photographs along with descriptions of Cave scopes, an active discussion forum, and items for sale and wanted. Mars observers and historians might want to look at www.omahaastro.com/cave/tomcave, where they can read about the life of company owner Thomas R. Cave, Jr. Detailed information about any particular Astrola® telescope is seen in the online 1975 Cave catalog, located at www.frobenius.com/cave.htm/.

Cave Astrola® telescopes and parts are actively snapped up by a growing pool of dedicated collectors. The legendary mirrors put out by Cave Optical Co., with exceptionally smooth and accurate figures that are free of zonal errors and other damaging aberrations, are guaranteed to beat or equal those figured by the best opticians today. Undoubtedly Tom Cave realized the high standards of the Dall-Kirkham mirror sets made at Three "B" Optical, and decided to incorporate them into his premium Cassegrain line of telescopes. The price of Cave instruments has been rising steadily in recent years, and the demand among amateur astronomers far outstrips the supply. The realization that the observer is getting a true piece of telescope history and something that will give many hours of the very finest viewing pleasure contributes to the demand. This is reflected in the price, where the current value of a smaller, excellent condition 8" f/15 Cave Astrola® Cassegrain is approximately $1400-1600, while that of the featured vintage 10" Transportable Model is $2000-2500.

VIEW "DEEP IMPACT" SPACE COLLISION AT OMSI PLANETARIUM JULY 3 Spacecraft Gets Up-Close and Personal with Comet Tempel 1

PORTLAND, Ore - (June 21, 2005) Oregon space enthusiasts are invited to the Oregon Museum of Science and Industry's free "Deep Impact" party on Sunday, July 3 from 10 p.m. to 1 a.m., to witness the first-of-its-kind, hyper-speed impact between a space-borne iceberg and a copper-fortified probe scheduled for approximately 10:52 p.m. PDT on July 3.

After a voyage of 173 days and 268 million miles, NASA's Deep Impact spacecraft will get up-close and personal with comet Tempel 1 on July 3. The Deep Impact spacecraft, and ground and space-based observatories will observe the potentially spectacular collision on July 3 from 10 p.m. to 1 a.m. Viewers will be able to watch in the OMSI Kendall Planetarium via a non-stop live link from NASA TV.

During the early morning hours of July 3, the Deep Impact spacecraft will deploy a 1-meter-wide (39-inch) impactor into the path of the comet, which is about half the size of Manhattan Island, N.Y. Over the next 22 hours, Deep Impact navigators and mission members located more than 83 million miles away at the Jet Propulsion Laboratory, will steer both spacecraft and impactor toward the comet. The impactor will head into the comet and the flyby craft will pass approximately 310 miles below.

The crater produced by the impact could range in size from a large house up to a football stadium, and from two to 14 stories deep. Ice and dust debris will be ejected from the crater, revealing the material beneath. The flyby spacecraft has approximately 13 minutes to take images and spectra of the collision and its result before it must endure a potential blizzard of particles from the nucleus of the comet.

Deep Impact will provide a glimpse beneath the surface of a comet, where material from the solar system's formation remains relatively unchanged. Mission scientists expect the project will answer basic questions about the formation of the solar system, by offering a better look at the nature and composition of the frozen celestial travelers we call comets.

"Data returned from the Deep Impact spacecraft could provide opportunities for significant breakthroughs in our knowledge of how the solar system formed, the makeup of cometary interiors and the role cometary impacts may have played with Earth's early history and the beginning of life," said Jim Todd, OMSI planetarium manager.

Tempel 1 is a short-period comet, which means it moves about the Sun in an elliptic orbit between the planets Mars and Jupiter once every 5.5 years. Its nucleus is believed to be of low density, with a diameter of about 4 miles.

Amateur astronomers and others not participating in the formal scientific program may be able to get a look at comet Tempel 1 if they have access to a small telescope. In all but the Pacific coast of the continental United States, comet Tempel 1 will be below the horizon during the encounter and therefore not visible. Moving west to the Pacific coast, it will be just above the southwest horizon to the upper left of the bright star Spica of the constellation Virgo.

"The comet will be nothing more than a very faint fuzz ball in a telescope," Todd said. "We have no idea what the result of the impact will be. Some reports predict that it may take 30 minutes, or it may take 7 to 10 hours for the ejecta to expand into something observable from Earth-based telescopes. People should be encouraged to look at the comet before and after the impact, and not think that they missed the event because they couldn't see the comet at the time of impact."

If it weren't for the Deep Impact mission, the comet would only reach a magnitude of about 9.5. The limit of the unaided human eye is about magnitude 6 (larger numbers mean dimmer objects), so some form of telescope or powerful binoculars would be necessary. But the impact could make the comet 15 to 40 times brighter than normal -- perhaps as bright as 6th magnitude, around the limit of the human unaided eye.

To view images of the Deep Impact log onto the NASA website at <http://deepimpact.jpl.nasa.gov>. http://deepimpact.jpl.nasa.gov/gallery/gif/DI_Icon.gif

Lunar Viewing July 16, 2005 - 8:30 pm - OMSI East Parking Lot Because the moon will be in a perfect position for viewing on Saturday, July 16, the Oregon Museum of Science and Industry, Rose City Astronomers and Vancouver Sidewalk Astronomers have organized a Star Party, beginning at 8:30 pm in OMSI's East Parking Lot. The angle of the sun will cause deep shadows to fall on the moon's surface, making its highlands and craters more easily visible. Members of RCA and VSA will make their telescopes available and OMSI Planetarium Manager Jim Todd will present informal talks on the moon's cycles, visible constellations such as the summer triangle, and the summer night sky. From beginners to experts of all ages, visitors will have the opportunity to view the stars and other objects through a variety of telescopes. In addition, the museum will provide a large-screen, live image of the moon by connecting a projector to a telescope. The event is free and open to the public. For possible weather cancellation, please call 503.797.4610 after 4:00 pm on July 16 for the latest information.

Jim Todd | OMSI Planetarium Manager | Portland, Oregon

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

July 2005

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						

July 2005

Jul 9	Sat	RCA Star Party	White River Canyon	
Jul 11	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Jul 16	Sat	Lunar Viewing	OMSI East Parking Lot	
Jul 18	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Jul 21	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm
Jul 30	Sat	RCA Star Party	White River Canyon	

Aug 2005

Aug 1	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Aug 15	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Aug 18	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 8 Newsletter of the Rose City Astronomers August, 2005

RCA August General Meeting

New Ideas on Planetary Formation: Implications for Habitable Worlds?

Presented by Tony Leavitt
NASA Aerospace Education Specialist

Scientists have long held to the idea that planets form through a relatively slow process of accretion from materials in planetary nebuli. New observations and data from recently launched NASA missions are changing our thoughts on this process. Our understanding of Earth's formation has major implications as we search the heavens for other planets that might support life. Tony Leavitt will update the latest findings from NASA research missions studying how planetary systems form.

Tony is an Aerospace Education Specialist out of NASA Ames Research Center. He works with K-16 teachers and students, state and county educators, as well as informal education programs at museums and planetariums to promote science, math and technology education throughout Oregon and Nevada.

All are Welcome!

Monday August 15

Social Gathering: 7 pm.

Meeting Begins: 7:30 pm.

Location: OMSI Auditorium

Galileo Spacecraft takes a parting shot of Earth and Moon, January 1990. Courtesy: NASA Headquarters - GReatest Images of NASA, http://grin.hq.nasa.gov/.

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
August 4, 8:06 PM PDT	August 12, 7:40 PM. PDT	August 19, 10:54 AM. PDT	August 26, 8:19 AM. PDT

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Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.org

RCA MAGAZINE SUBSCRIPTIONS

One of the benefits of RCA Membership is reduced rate subscriptions to Sky & Telescope and Astronomy magazines. Sky & Telescope Magazine is $32.95 for one year. Astronomy magazine is $29 for one year or $55 for two years. **For more information go to the RCA web site and click on any of the links for magazines.**

Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings. Please Note: Allow two months for your subscription to be renewed. Sky & Telescope Store Discount.

RCA members who subscribe to Sky & Telescope are entitled to a 10% discount at the Sky & Telescope online store at: http://skyandtelescope.com/shopsky To get your discount, enter Rose City Astronomers when prompted for your club name during checkout at the Sky & Telescope online store.

Members Helping Members

By RCA President Carol Huston

During the past month, there was a wonderful discussion on the RCA Bulletin Board about members helping members with their astronomical questions and the need for these activities within the club. There were so many good testimonials, good ideas, and volunteers to carry them out. It was so valuable that I'd like to summarize them here for everyone:

RCA has a New Member Advisor, Jim Reilly, who usually sets up at the general meetings at the Membership Table. Jim's role is to help people who have questions about any aspect of astronomy, and to help steer them in the right direction for information. Quite an astronomer himself, Jim is full of practical information. In addition, he has a great set of printed resources as well as a mentor list to connect people to the resources they need to help out with their astronomy issues. Jim periodically holds Member Orientation activities to help people get connected within the club. Please see Jim at a general meeting with your questions or contact him by e-mail. In addition, the RCA Library staff and the Telescope Library staff are good sources for lots of different information.

Our RCA bulletin board list is a great spot to post any questions you might have about astronomy. Looking for some help? You will get many offers if you post a problem to this list. My husband and I have met with and helped many members put together, figure out, and get to know their telescopes and equipment, and I know other members have done the same. Even if you are vague about what you are looking for, please come forward and ask for assistance. All of the more seasoned members of the club were at one time in the same boat of confusion! Neil Hancock offered his online Astronomy Journal at http://www.myastronomyjournal.com.

RCA's Telescope Workshop: This is a once-per-month gathering of members helping members with various aspects of astronomy: telescope making, telescope function, observations, and just plain astronomy schmoozing. Dates and times are communicated at general meetings, in the Rosette Gazette, on RCA's web site, and on RCA's bulletin board list. John DeLacy is the contact for this activity.

RCA Star Parties and RCA/OMSI Public Star Parties: Show up a little early and start asking questions. You will get assis-

(Continued on page 3)

Presidents Message *(Continued from page 2)*

tance from many directions. Check the RCA web site for a full schedule. The upcoming OSP is a grand opportunity for days and days of astronomy talk, programs, astronomy equipment and gear, and mentorships.

There were many good suggestions for presentations at general meetings about observing techniques as well as requests for workshops on various technical aspects of observing: collimating, star hopping, polar aligning, scope care, etc.

You can check out other local astronomy clubs for a variety of activities: SW Washington Star Gazers Club and Eugene Club. There is also the Vancouver Sidewalk Astronomers. Sean's Astronomy shop has a very knowledgeable staff that is eager to help with lots of astronomy questions – observing as well as equipment.

Mentoring Programs: There were so many good ideas around this in addition to the mentor type activities already established that we will need to put all of these together to see how we can best use everyone's suggestions.

A club as large as RCA has a whole variety of interests that members pursue. I have always seen RCA as an observational club because that is my focus (so to speak). My husband is into the more theoretical aspects and leans in that direction. That RCA can support all of these activities is a testament to the dedication of the volunteers and their enthusiasm for "members helping members". The RCA Board welcomes everyone's suggestions and offers to volunteer – that is what makes this club successful and fun.

NASA Space Place

Newest Weather Sentry Takes Up Watch

by Patrick L. Barry

Today, we've become accustomed to seeing images of the Earth's swirling atmosphere from space every night on the evening news. Before 1960, no one had ever seen such images. The first-ever weather satellite was launched that year, kicking off a long line of weather satellites that have kept a continuous watch on our planet's fickle atmosphere—45 years and counting! The high-quality, extended weather forecasts that these satellites make possible have become an indispensable part of our modern society, helping commercial aircraft, recreational boaters, and even military operations avoid unnecessary risk from hazardous weather. But satellites don't last forever. Parts wear out, radiation takes its toll, and atmospheric drag slowly pulls the satellite out of orbit. Many weather satellites have a design life of only 2 years, though often they can last 5 or 10 years, or more. A steady schedule of new satellite launches is needed to keep the weather report on the news each night. In May 2005, NASA successfully launched the latest in this long line of weather satellites. Dubbed NOAA-N at launch and renamed NOAA-18 once it reached orbit, this satellite will take over for the older satellite NOAA-16, which was launched in September 2000. "NOAA always keeps at least two satellites in low-Earth orbit, circling the poles 14 times each day," explains Wilfred E. Mazur, Polar Satellite Acquisition Manager, NOAA/NESDIS. "As Earth rotates, these satellites end up covering Earth's entire surface each day. In fact, with two satellites in orbit, NOAA covers each spot on the Earth four times each day, twice during the day and twice at night," Mazur says.

By orbiting close to Earth (NOAA-18 is only 870 km above the ground), these "low-Earth orbit" satellites provide a detailed view of the weather. The other type of weather satellite, "geosynchronous," orbits much farther out at 35,786 km. At that altitude, geosynchronous satellites can keep a constant watch on whole continents, but without the kind of detail that NOAA-18 can provide. In particular, low-Earth orbiting satellites have the ability to use microwave radiometers to measure temperature and moisture in the atmosphere—two key measurements used for weather prediction that, for technical reasons, cannot be sensed by distant geosynchronous satellites. With NOAA-18 successfully placed in orbit, the 45-year legacy of high-tech weather forecasts that we're accustomed to will go on.

Find out more about NOAA-18 and the history of polar-orbiting weather satellites at http://goespoes.gsfc.nasa.gov/poes. For kids and anyone else curious about the concept, the difference between polar and geosynchronous orbits is explained at http://spaceplace.nasa.gov/en/kids/goes/goes_poes_orbits.shtml

NOAA-18, the newest in a long line of weather and environmental satellites, launched May 20, 2005.

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

ASTROPHYSICS / COSMOLOGY SIG

Date/Time: Thursday, August 18, 7 PM.

Speaker: Michael Meo.
Michael has a degree in Astronomy and Mathematics. Come hear Michael's compelling and thought-provoking cutting edge presentation on what happened before the Big Bang!

Topic: "Before the Big Bang"

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

We are looking for speakers to lead a discussion.

Contact: Bob McGown (503-244-0078)

or Dareth Murray, (503-957-4499) for more information.

Observing Site Committee

To lead and coordinate efforts of the Rose City Astronomers (RCA) in securing and managing a variety of observing sites for private use by members, and for community outreach and special events organized by the RCA.

Please Support the Site Fund RAFFLE at the Club Meeting by buying tickets or donating prizes. CASH accepted anytime!

Please Check http://nemoworld.com/RCA/sitehome.htm for more information.

Or Contact: David Nemo <david6366@msn.com>

Telescope Workshop

Date/Time: Saturday, August 20, 10:00 AM - 3:00 PM

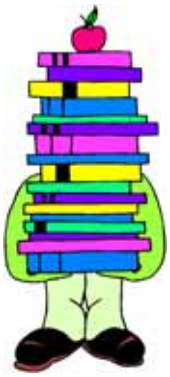
Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

For more information contact:

Director: John DeLacy johncdelacy@comcast.net

Assistant: Don Peckham don@dbpeckham.com

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, Jan Keiski.

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.rca-omsi.org/library.htm

Penny Henning recently joined the library staff. She joins Tammy Ross, Chris Steinkamp and Carolyn Nissen.

Jan Keiski (jikeiski@comcast.net)
503-539-4566

The Junior RCA is a program of observing for Children ages 13 and under! The program involves gaining knowledge and experience in observational astronomy with experts from the amateur astronomy community. The culmination of the child's work will result in recognition at the general meetings (if a child does not want public recognition, that's fine, too!). Each of these young amateur astronomers will receive a certificate and medallion, as well as the opportunity to become an expert resource for other child astronomers following them through the program.

Kids ages 12 and under are invited to attend the Junior Rose City Astronomers during the monthly general RCA meetings, the 3rd Monday of every month from 7:30 p.m. until 9:00 p.m. Contact Jenny Forrester at jenny@theforrest.org for information.

Rose City Astronomers 'Downtowner's' Lunch

Join us on the first Friday of each month for lunch at the Great China Seafood restaurant (Holidays and such may push us to the second Friday of some months, check the calendar at http://www.rca-omsi.org).
Cost is $6.50 for all-you-can-eat Chinese Buffet Lunch.
Great China Seafood restaurant
334 N.W. Davis, Upstairs on the 2nd floor
Great conversation and buffet lunch.
For more information contact: Margaret McCrea at mmcrea@nwlink.com

BOARD MEETING MINUTES

July 11, 2005
OMSI Parker Room
Ken Cone

President Carol Huston called the meeting to order at 7:15 pm.

Board members present: Peter Abrahams, Matt Brewster, Ken Cone, Patton Echols, Ed Epp, Ken Hose, Carol Huston, Jan Keiski, Bob McGown, Dareth Murray, David Nemo, Greg Rohde, Sameer Ruiwale, Jeff Sponaugle, Matt Vartanian

Board Reports:

- Secretary's Report – Ken Cone: Quorum (12) met with 15 voting members present.
- Treasurer's Report – Ed Epp: Cash in accounts $ 12,514.42 Ed presented the budget for July 2004 to June 2005. Copies of the finalized budget for 2005 to 2006 will be distributed at next board meeting.
- VP Programming – Matt Brewster: August is Tony Levett NASA Education and Programs. Don Brownlee, speaker in April from the University of Washington, has donated his time in lieu of taking the speaker's stipend. Matt and Carol will send Don a letter of appreciation from RCA. The board will have a discussion via email on what to do with donations including property, cash, and acknowledging donors.
- VP Observing – Matt Vartanian: upcoming events, July 16th OMSI lunar viewing. July 30th White River Canyon. Aug 6th Trout Lake -- Jan will provide details.
- VP Community Affairs – Jeff Sponaugle: Several recent events cancelled Upcoming Sept 29th Johnson Foundation, Aug 20th is Deschutes BLM.
- VP Membership – Ken Hose: 327 member families. $946 for June meeting.
- New Member Advisor – Jim Reilly via e-mail: New member orientation coming in July 31st.
- Media Director – Patton: Press release went out from RCA before solstice.
- Sales – Sameer Ruiwale: $42 for June. Sales are down for this year.
- Book Library – Jan Keiski: Needs a laptop for book check in and out. Jan showed a new book "The Grand Tour" by William Hartman. Check it out in the library.
- Telescope Library – Greg Rohde: 6" scope is close to being finished in the ATM workshop. Discussion on the Celestron C-8, a great old scope, resolving focus and tracking motors problems with the scope. Original intent was to sell it because it was not being used. Jan will take pictures of all scopes for publishing in the Gazette. The board reviewed a proposal by RCA member Howard Knytych to add a solar max filter to the scope library. Board voted at this time to not add this to the scope library due to the limited number of members who would be able to use it.
- IDA – Bob McGown: IDA information brochures available from Bob. A local PUD asked if RCA subsidized replacing luminaires – no we don't. Bob to communicate back to the PUD.
- Magazine Subscriptions – Larry Godsey: $ 450.65 in magazine subscriptions for June.
- No reports from SIGs, Gazette Editor, Webmaster, OMSI, Site Committee, Alcor, and JRCA.

Old Business

- Phone Line Report – June 7 through July 4: Dareth, many calls about Deep Impact. July 11 through Aug 1: Carol. August 1st through September 4th: Greg Rhode. September 5th to October 3rd: Matt Brewster

New Business

- Discussion of hosting an AL annual conference here in Portland in July 2007 or possibly 2008. Several board members volunteered to work on the organizing committee. Dareth and Bob will be attending the upcoming AL convention in August 2005. **Motion by Dave and seconded by Patton that an organization committee present a proposal at next months board meeting for approval. Passed. Action: Dareth and Carol will prepare the proposal for board consideration. Motion by Patton and seconded by Greg that Dareth be the chair of an AL Convention organizing committee, consisting of the following board members: Dareth Murray, Chair Carol Huston, Doug Huston, Bob McGown, David Nemo, Matt Vartanian, Sameer Ruiwale, Jan Keiski, Tammy Ross, Patton Echols, Greg Rohde, Matt Brewster. Motion passed.**
- Board discussed whether a cancelled membership in RCA should be refundable. Given the logistics and coordination involved, board members felt it would be too convoluted to manage and enforce.
- Book Sale for Site Committee and guidelines for donations: This topic was tabled for next meeting.
- Lifetime membership guidelines, discussion of what to do with funds from lifetime membership. Action: Dave and Bob will work up a proposal for lifetime membership guidelines.
- SIG Director Margaret McCrea has stepped down as SIG director. Duties include being a point of contact for people interested in forming a new SIG. The SIG director also represents existing SIGs at the board. The position could also be organizer/coordinator of volunteers. Carol will send a note to the general email list.
- BPA has a C-14 to dispose. Do we want to bid for it? Matt will work with Jim Reilly to look into the possibility of acquiring the scope for a permanent site.
- Where did we end up with the solar filter discussion? No action.
- Hilltop Tower for stargazing – Washington County, Stewart State Park in Banks, tabled until next month. Matt and Greg will contact State of Oregon to look into the situation.

Adjourn 9:10 pm

Dark Skies, High Mountain

By Bob McGown & Dareth Murray

As a result of a lucky meeting at the Oregon Symphony, my friend Neale Creamer, President of the Friends of Silcox Hut and fellow American Alpine Club member, confirmed our date for hosting climbers at Silcox Hut on Memorial Day. It is a gamble to try to observe deep sky objects in the Oregon Spring. But our annual star party at Silcox Hut was a "usual" rare treat after a string of bad luck of trying to view the night sky at low altitudes in the Portland area. The "usual" conditions are a remarkable sea of clouds that totally block any sky glow from the valley with clear, dark skies above to reward the intrepid observer. This night was no exception. We enjoyed observing from Silcox under truly excellent conditions.

Bob getting the solar scope ready!

However, before we got our gear into the snow cat, "Cosmic Crusader" Bob McGown had to do some solar observing right in front of the entrance to Timberline Lodge! My partner Bob, not a shy guy, was calling: "Do you want to look at the Sun?" I would add: "It's safe - this is a special telescope, a Coronado PST with a Hydrogen A filter. With this you can see the Sun safely!" The mountain tourists departing the lodge, swarmed around Bob. He managed to let them all take a look at the Sun, barely averting a minor traffic jam. I would take the dazed observers aside so Bob could let the next batch of anxious would-be amateur astronomers peek at the Sun. I told them about coronal mass ejections (CME), how long it takes for the light from the Sun to reach Earth, and many other solar goodies.

But we had to ascend the mountain and the snow cat was ready! We stowed our gear and the telescope in the cat and headed for Silcox Hut. Although snowfields and glaciers surrounded us, the evening was almost warm. A cloud deck settled down just below Timberline Lodge and the Milky Way looked like a great illuminated edge-on disc in the sky. The teapot asterism of Sagittarius appeared about 25 degrees in the sky with Scorpius and Antares at its right. From the 1933 WPA classic alpine lodge on the flank of Mt. Hood, the horizons were negative next to the silhouette of the mountain. At 7,000 feet, the sky background is very dark, with the Milky Way casting shadows on the volcanic platform of sinders in front of the hut.

Snow cat rests in reflected sunset at Silcox Hut.

Tonight, Sue Wainwright, another member of Friends of Silcox Hut, joined Dareth Murray & me, along with Silcox Hut caretaker Steve Buchen who chauffeured the snow cat from Timberline Lodge up the Palmer snowfield to Silcox Hut along the magic mile ski run. Gary & Cecile Beyl, climbers/RCA members from Portland, also joined us. They had hiked up with packs to observe and stay for the night as invited guests to help host the climbers for Silcox Hut.

Steve, a most excellent host, served a lasagna dinner with several salads and cheese cake. We sat in the Overlook Room filled with furniture of hand-hewn logs and shared climbing and astronomy stories. After a refreshing nap in the lower bunkroom, we went outside to observe at 10 p.m. The conditions were - out of this world! There were a few wispy lenticulars, occasionally hanging on the summit of Mt. Hood. The Coleman and White River glaciers on the mountain were reflecting light from the Milky Way. Seldom have we seen the night sky so dark. Although we weren't counting the satellites precisely, it

(Continued on page 7)

Dark Skies, High Mountain *(Continued from page 6)*

seemed that there were about 15 that hour with 4 iridium flares, sporadic meteors, and a flyby of the ISS.

The Overlook Room features a fireplace with tools hewn by the blacksmith Darryl Nelson. The room has lamps with leather lampshades and walls of carved lava rock and pumice stone. Steel shutters adorn the windows and plinth block arches with hand forged iron gussets set off the rustic originality of this structure. There is a meditative stillness when relaxing in the Silcox Overlook room. Spying a tiny mouse hiding in the firewood made me realize that we are not the only ones who share the spirit of the mountain.

Official elevation - sign in the Overlook Room.

Our 10" Dobsonian scope was set up in front of the hut and we poured ourselves into the night amongst a sea of stars. Initially we observed some of our favorite nebulas and globulars on the southern horizon. It was extremely easy to find our favorite objects because the limiting magnitude stars made such a high contrast against the background of stars. The Whirlpool Galaxy displayed the spiral arms and was the brightest I'd ever seen it in a 10" scope. Our initial reaction was to surf around the horizons and view as many classic Messier & Caldwell objects as possible. We scanned NGC 4565 in Coma Berenicus and explored some of the classic Virgo objects in the realm of the galaxies looking for black hole jets.

Below us, we could see the pinpoints of light from climbers, like scouts from a colony of ants. The distant blue glow of LED headlamps of climbers inching their way up the mountain would eventually reach us. Under the sky map of the stars, the climbers were like dimly glowing ants ascending a great ant hill. They kick-stepped their way up the snowfields as if all driven by a united instinctive force steering them to the top. The mountain was like the Queen of Ants, to be briefly visited on the summit after months of preparation. In the same way ants collect rock fragments and meteoritical nodules, climbers collect experiences, imminent to their space/time adventures. It was quite entertaining to see climbers observing deep sky objects and questioning their decision about the pre-dawn ascent of the mountain. "Let's just take a look at the stars" they would say. In the fleeting moments where the Earth meets the sky, ant-like climbers share a brief instant in time where all spatial dimensions fall away. They might gain insights into the cosmos, which could never come again. Climbers and sky-watchers do have much in common!

Bob getting ready to observe Mars. Moon in background.

The rising Moon as a reddish-orange colored crescent, rose about 2 a.m. The Red Planet followed the rising Moon, seeming to catch that unearthly glow. We observed Mars and hosted more climbers on their way to the summit before taking our sunrise nap and snow cat ride descent back to Timberline Lodge at 9 a.m. Gary and Cecile packed up their gear and headed upward. They are indomitable Mazama climbers and seekers of what humans are capable of doing. Dareth was nervous as the snow cat tracked its way onto the very slim corniced roadway, next to "snowboarder canyon", a very dangerous looking cliff tumbling down hundreds of feet to the melting snow and rock below.

Before heading home toward the cloudy realm of Portland, we hiked around the timberline and looked at the observing site next to the amphitheater, that was the site of Cosmos '93, an Astronomical League conference held at Timberline Lodge. Again, another unforgettable experience! It made me dream of another Cosmos Conference – perhaps in 2007?






Photos from Camp Hancock Star Party May 2005

by Jan Keiski





A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 9

By John W. Siple

Coulter Optical® 13.1" f/4.5 Odyssey 1 "red" Dobsonian reflector telescope. This model was purchased in April 1993.

The 1 ¼-inch focuser used on the Odyssey 1. A Telrad has been added to help aid in finding deep-sky objects. The current secondary market value is $500-650.

The Coulter Optical® "red" 13.1" f/4.5 Odyssey 1 Dobsonian was introduced in 1986, a successor to the earlier and extremely popular "blue" model. It was made in Idyllwild, Calif., the brain child of the company's owner James A. Braginton, who was inspired by the works and philosophy of John Dobson. The firm's goal was to produce affordable, large aperture telescopes that were transportable. They succeeded admirably, and many of their telescopes are often seen at club-hosted star parties. Production ceased shortly after he passed away in April 1996. The rights to continue marketing the Odyssey® line of reflectors were purchased by Murnaghan Instruments Corp., an optical company located in West Palm Beach, Florida. They sold the fully-assembled Odysseys (with accessory options) under their label beginning in 1996, but stopped production of the big light buckets half a decade later. In their listings today Murnaghan Instruments still offers primary mirrors and Dobsonian telescope component kits for sale, however the selection has been pared down to only 4.5" through 10" sizes (plus matching elliptical diagonal secondary mirrors).

The designers at Coulter improved upon the original bulky "blue" version by keeping the primary mirror thin and light with a 1:13 thickness-to-diameter ratio instead of the standard 1:6, but remounted it in their superior "Easy-Adjust" mirror cell (before this modification the mirror was held in a sling type of contraption, and had to be removed after each observing session). The rocker box was also reconfigured and made lighter; the entire 97 lb. telescope could now be easily loaded into the back of a station wagon or family van and moved to a convenient location by just one observer. The Coulter Odyssey 1 is a no-frills and low maintenance telescope. A cardboard form called a Sonotube holds the optics, and the black rocker box and base are composed of water resistant high density board. The Dobsonian mount has simple but tough U.H.M.W. (ultra high molecular weight polyethylene) bearings. This does not diminish its astronomical capability, since the limiting magnitude hovers in the neighborhood of 15.6 and the resolving power is 0.35 arc-seconds. It has 477% more light collecting power than a 6" instrument. Observations in the telescope are made using the supplied 27mm Kellner eyepiece. Many observers change or alter the focusing mechanism, which consists of a sliding drawtube tightened into position by a locking ring. A common upgrade is to replace it with a quality Crayford focuser.

A favorite technique of the author is to place the main optical tube barrel and base separately onto a suitably-sized hand truck and then wheel them (carefully) to the observing spot in the backyard. The Odyssey 1 is a perfect choice for completing the Herschel I observing program, since faint deep-sky objects on the list pop into view without an intensive sky-scouring effort. An off-axis aperture stop, easily constructed from household materials, gives refractor-like images of the planets and double stars (used to best advantage at high power).

To keep an object centered in the eyepiece field the telescope must be moved continually in both altitude and azimuth. In lieu of astrophotography, rather than spending a small fortune on an equatorial platform or remounting the optics in a classic German equatorial for precise tracking purposes (not to mention the cost of the camera equipment), there is the option of making your own pencil or chalk drawings. The best renditions are made on a textured black paper medium using chalk to represent stars and deep-sky objects. The drawings can be time consuming, but the observer tends to remember each galaxy, star cluster and nebula much better than if they took a fast digital image. There is a certain feeling of satisfaction in knowing that you recorded something in the cosmos by your own hand.

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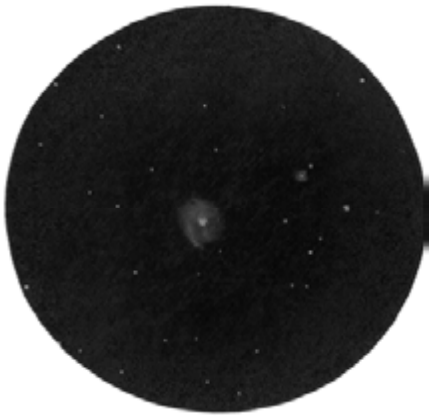


NGC 4303 (Messier 61) in Virgo
Right Ascension 12h 21.9m, Declination +04º 28'
Barred spiral galaxy--Mag. 9.7v, dia. 6.0' X 5.9'
17mm Tele Vue Plossl eyepiece (88x)

THE OBSERVER'S CORNER

Howard Banich

"The stars receive their brightness from the surrounding dark."
Dante

August means the Oregon Star Party is close at hand, and that presents several interesting observing opportunities. A truly dark, transparent and steady sky offers the best chance to look at everything so, echoing comments I made in last months article, having a list of objects you simply have to look at is a good place to start. But what objects? How about something a little different?

Bright nebulae are some of the finest sights in the summer sky and I'm sure we'll all enjoy some excellent views of the Lagoon, the Trifid, the Swan and of course the Veil nebulae through a variety of telescopes. Much less well known but equally fascinating are the **dark nebulae**. These are interstellar clouds of gas and dust that we see in silhouette against the stars of the Milky Way, and which sometimes seem like dark, starless voids, or at least nearly so. Dark clouds in our own atmosphere have much the same appearance when seen passing in front of the Milky Way, and are actually what started astronomers of the 20th century to think that dark nebulae were probably galactic clouds instead of starless voids.

Sometimes it's easy to see them as both, rather like craters can sometimes look like domed plateaus in photographs. Perception is a slippery thing sometimes, but it can be an interesting part of observing if you're stay mindful of its possibilities.

Dark nebulae come in all sizes, which I think is part of their unique appeal. You don't need a telescope for some because they're quite large, binoculars work best for others, and the smaller ones tend to look best through a telescope, especially at low power.

Be sure to have a lounge chair handy so you can lay back and take in the view of the largest dark nebulae in comfort. Binoculars are always handy but let your eyes wander around for awhile and you may start to see dark nebulae everywhere along the Milky Way.

A small scope will give a good view of the telescopic dark nebulae, but a large scope may give a better one, depending on the magnification. However, the best observational tool is a very dark and transparent sky, so save these beauties for the very best nights – which hopefully will be every night at the 2005 Oregon Star Party.

Pipe Nebula, B78, LDN 1773

The Pipe Nebula is a great place to start looking for dark nebulae. It's a large object just to the northwest of the galactic center, and it's perfect for unaided vision and binocular viewing. It's too big for most scopes, but if you do point your scope this way you'll not only see much fewer stars, but also a few handfuls of other deep sky objects. Check out chart 22 of Sky Atlas 2000 and you'll see a bright planetary nebulae (NGC6369) and at least seven nearby NGC globular clusters, one of which is also known as M19. Makes you wonder what's on the other side of the Pipe.

The edges are ragged and diffuse for the most part, and are intertwined with other dark nebulae all around its bowl area, but look carefully all along the perimeter and you'll find some fairly distinct edges. There are also a few stars sprinkled across its dark face – these stars are probably in front of the nebula, and those that aren't are greatly dimmed by all the gas and dust they're shining through.

You can see the pipe in the above photo to the right of the brightest portion of the Milky Way. It's "stem" points down slightly toward the right corner of the photo and is about half the length as the meteor streaking down the Milky Way.

The Pipe is very approximately centered on RA 17 hours, 30 minutes, Declination -24 degrees.

The Great Rift

If you've ever seen the summer Milky Way in a dark sky you've already seen the Great Rift. This is the ragged stream of dark that runs through the center of the Milky Way, especially from Cygnus to Sagittarius. If you can see the Milky Way, you can't miss it – in the above photo it's the vertical convoluted dark lane that almost exactly mirrors the bright Milky Way to its left.

The Milky Way is less bright to the right of the Great Rift here, an effect due to the fact that we're not exactly on the galactic equator Earth is about 3000 light years off-plane, so we see more stars to one side of the Rift. Look again at the first photo and notice how there are many more dark nebulae on the west

(Continued on page 11)

The Observers Corner *(Continued from page 10)*

side of the Milky Way than on the east side. I think that's pretty cool.

The Great Rift is probably the most distinctive and certainly the most easily recognizable dark nebula in the sky. Scan its length with your eyes, and if you can, lay down on a lounge chair with your body perpendicular to the Milky Way, preferably when it's oriented north-south. Take in as much the Great Rift and the stars of the Milky Way as you can in one glance, remembering that the brightest part just west of the Sagittarius teapot is toward the galactic center.

You've just seen the best edge-on galaxy possible, and from the inside no less.

Barnard's "E", B142 and B143

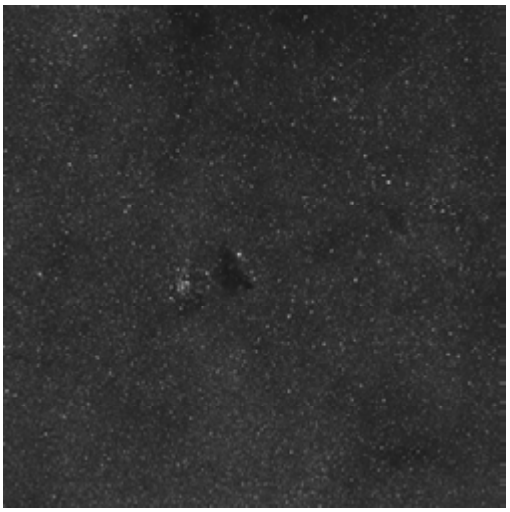
http://www.library.gatech.edu/about_us/digital/barnard/index.html

This is one of my favorite objects period, dark nebula or not. Actually, its two dark nebulae right next to each other, B142 and b143. It's a perfect size for binoculars, it's easy to find and it actually looks like its name. The Barnard the "E" is named for is Edward Emerson Barnard, or more familiarly, E.E. Barnard. I like the symmetry between the names.

Edward photographed and cataloged many of the dark nebulae early in the 20th century which he describes in his book, "A Photographic Atlas of Selected Regions of the Milky Way". The photo above appears in his book.

Look for Barnard's E due west of the star Tarazed, also known as Gama Aquilae. This is the next brightest star to the northwest of Altair (the bright star in the above photo). If you put Tarazed in your binocular field of view you'll see the E. Check out chart 16 in Sky Atlas 2000 around RA 19 hours, 40 minutes, Declination +11 degrees.

B86, the Ink Spot with open cluster NGC 6520



http://www.library.gatech.edu/about_us/digital/barnard/index.html

This is a fabulous area of the Milky Way. Scan around with binoculars, and then for telescopic views use your widest angle eyepiece. Star dust is everywhere and highlighted by scores of dark nebula. The darkest of the bunch is B86, (nicknamed the "Ink Spot") which happens to be nearly on top of the open star cluster NGC 6520. Wow, what a view this can be when the sky is really dark and clear!

Whether B86 is what's left of the cloud that NGC 6520 formed out of, or a chance alignment hardly matters for the visual spectacle it provides. This is the best place to see a truly dark nebula right next to a bright open cluster. Pan around the area and you'll come across many more but less distinct dark nebula. B86 is about 2 degrees almost due north of the tea spout star, Alnasl, or Gamma Sagittari. It's roughly centered on RA 18 hours, 3 minutes, Declination -28 degrees. It's shown on chart 22 of Sky Atlas 2000.

Snake Nebula, B72

http://www.library.gatech.edu/about_us/digital/barnard/index.html

(Continued on page 12)

The Observers Corner *(Continued from page 11)*

This is the toughest of the bunch to see so you'll probably need a telescope, but it takes us back to where we began, just off the bowl of the Pipe Nebula. If you look at chart 22 of Sky Atlas 2000 you'll see the Snake Nebula curving off like a wisp of smoke. This is also the smallest of the dark nebula I've discussed, and a careful look at the relative proportions between it and the Pipe will help you gauge what to look for in the eyepiece.

The Snake is fairly low contrast so it won't jump out at you, but the edges are distinct and the shape unmistakable – you'll definitely know when you've seen it. In the above photo, also taken by E.E. Barnard, the Snake is located in the lower one fourth of the photo just left of center. The diffuse bowl of the Pipe Nebula is in the lower left corner, with the rest of the Pipe out of the frame. You'll also notice three smaller dark nebulae directly to the Snake's west – B68, B69 and B70. Heck, this whole area is littered with dark nebula so take your time and enjoy the sights.

The Snake is centered on approximately RA 17 hours, 25 minutes, Declination -24 degrees.

B92 and B93 in the Small Sagittarius Star Cloud

http://www.library.gatech.edu/about_us/digital/barnard/index.html

The small Sagittarius Star Cloud is for my money the most gorgeous star field for low power telescopic sweeping. I don't think there's a more densely packed part of the Milky Way anywhere. Within the star cloud is a beautiful cluster, NGC 6603, that appears as a three dimensional pile of stars – it's a wonderful sight. Check it out, but what helps set off this starry wonderland are the nearby dark nebula, B92 and B93. These two compact and distinct dark nebulae sit on the northwest border of the star cloud and show just how dark a dark nebula can be. Look at the bottom center of Sky Atlas 2000 chart 16 or the top center of chart 22, or at 18 hours, 16 minutes, Declination -17 degrees. If B92 and 93 don't latch onto your imagination, perhaps the lovely 6603 and the rest of the star cloud will.

For those with good color sensitivity, do you get a sense that the star cloud has a slight bluish cast to it?

OMSI Perseid Meteor Shower Watch

August 11, 2005 - 9:00 pm - Rooster Rock State Park

The Perseid Meteor Shower, an annual favorite for summer vacationers, will peak Thursday, August 11. OMSI, the Rose City Astronomers, Vancouver Sidewalk Astronomers and Oregon Parks and Recreation will celebrate the event with a Perseid Meteor Shower Star Party beginning at 9:00 pm that evening at Rooster Rock State Park.

OMSI and the astronomy clubs sponsoring the Star Party will have telescopes for visitors to look through, and OMSI Planetarium Manager Jim Todd will present informal talks about the meteor shower, constellations and the summer sky in general.

The event is free to the public. Rooster Rock State Park is located 22 miles east of Portland on I-84 (east of Sandy River) at exit 25. Though the event is free, there is a parking charge of $3 per vehicle. For possible cancellation because of inclement weather, call 503.797.4610 after 3 pm on August 11.

The meteor shower occurs when the earth passes through the densest part of the Perseid meteoroid stream every year around August 11th or 12th. The stream is the debris of comet Swift-Tuttle, which circles the sun approximately every 130 years. Arriving from the direction of the constellation Perseus, meteors (tiny bits of rock and dust) hit our upper atmosphere at speeds of up to 60 miles per second, vaporizing and creating a brief trail of ionized, glowing air.

This strong annual shower can produce 20 to 60 meteors a hour, though because of light pollution and other factors, many are too faint to be seen by the naked eye. This year the waxing crescent Moon leaving the sky at its darkest for the prime meteor-watching hours until the early morning. Under ideal conditions, you might see a Perseid or two each minute.

Occasional meteors will streak across the skies for several nights before and after the peak day. The extreme limits of the shower can extend from the end of July to the third week of August, though an occasional one may be seen almost anytime during the month of August.

For more information, call the OMSI Star Party Information Line at 503.797.4610, Rose City Astronomers Club at 503.255.2016, or Rooster Rock State Park at 503.695.2261.

OREGON STAR PARTY – SEPTEMBER 1-4, 2005

DARK SKIES – The Oregon Star Party is held in the isolation and darkness of the Ochocco mountains in Eastern Oregon located four hours from Portland and 50 miles east of Prineville, Oregon. At 5000 feet above sea level, the star party takes place in a large clearing and is accessible most of the way from Prineville via a paved road, with only the last 4 miles on a graveled road. Come join us for the darkest skies in the Northwest. Information, directions, registration, activities are listed on the OSP website at http://www.oregonstarparty.org.

REGISTRATION - Pre-Registration closes on August 5th and must be in our hands by then. So if you didn't pre-register before August 5th, you'll have to register on-site at the star party in the Registration Tent. Go to the OSP website at "http://www.oregonstarparty.org" to get the registration forms, fill them out on line, print them and bring them with you to OSP. The costs are listed on the forms. You can only order T-shirts, Sweatshirts and Dinners on the Pre-Registration Form. The only on-site sales of shirts will be on Saturday in the Volunteer/OSP Information Tent if there are any extras left over after people who Pre-Registered get theirs.

VOLUNTEERS - The Oregon Star Party has a dedicated committee of 30 people who work year around planning for the outing. But it still takes a lot of volunteers to make it actually happen. We still need people to volunteer for a 2 hour shift to help with registration, parking, shower ticket taking, setup and cleanup. See the OSP website for the general volunteer positions, then contact Jan Keiski, our Volunteer Coordinator at jikeiski@comcast.net with your name, email address or phone number, and if you have any area and time you would particularly like to volunteer for and she'll get back to you. For youth activities contact Jenny Forrester, momaesme@gmail.com; for adult mentoring contact Mark Dakins, mdakins@earthlink.net; and for youth telescope mentoring contact Bernie Kuehn, kuehnb@earthlink.net. We'll also be taking signups for volunteers at the August 15th RCA meeting. This year more door prizes were added for the volunteer's special drawing. A 6 inch dob from Hardin Optical among them!

VOLUNTEER/OSP INFORMATION TENT - We're opening up a new tent this year for volunteer and OSP information. No longer will you have to go all the way down to the Registration Tent for schedules, information, and volunteering. The new tent will be located at the junction of the 800 and 802 roads just across from the Activities Tent. What will we be doing in the new Volunteer/OSP Information Tent? Ask questions and get answers - Sign up to volunteer to cover a 2 hour shift - - Buy shower tickets - Obtain First Aid help - Kids can sign up for the Youth Telescope Mentoring program - Adults can sign up for help with their telescope problems and questions - Sale of extra T-shirts and Sweatshirts on Saturday.

SPEAKERS - We've managed to get a great list of speakers this year. Especially exciting will be the presentations by Don Machholz on comet hunting, Jane Houston Jones from JPL on the Cassini-Huygens mission to Saturn, and Richard Berry with an updated Our Universe in 3D. Plus Dave Powell, Dave Haworth, Bob McGown, George LaBelle, Greg Babcock, Dick Pugh, and Tim Crawford speaking on all sorts of Astronomical subjects.

ACTIVITIES - Don't forget the Telescope Walk-about, the Mars Rover Races, the Meteorite Hunt, the Solar System Walk, the Kids vs. Adult quiz, the Swap Meet, the Limiting Magnitude and Sky Identification programs. A lot of things to do during the day at OSP in addition to the very dark night skies.

YOUTH ACTIVITIES - This year Jenny has another full schedule of activities for the kids from 10am until 4pm every day. Parents are encouraged to volunteer to help in the Youth Tent.

DOOR PRIZES - To date we've received a lot of wonderful door prizes and more arriving each day. Harden Optical has donated not one, not two, not three, but 6 telescopes to OSP as part of the doorprize collection. Anacortes Telescope has donated a great selection of eyepieces, Sean's Astronomy Shop has donated a 10" telescope and gift certificates. OMSI, Sky Instruments, Sky Publishing, William-Bell, Edmund Scientific, Orion, Protostar, NASA, Lumicon, Equatorial Platforms, Bob McGown, Kenneth Novak, and ASP have already donated a variety of exciting prizes ranging from books, charts, binoculars, Atlases, tools, and other astronomical goodies.

BURGERS AND LATTES - yes, Mary will be back with the Chuckwagon serving up breakfast, lunch, dinner and late night snacks as in the past. Holli will be back with La'Tas Coffees and open late into the night for those late hour pick-me-ups. This year both the Chuckwagon and La'Tas are planning on being open for business one day earlier this year. So they will be open from Wednesday night through Sunday Noon for us.

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

August 2005

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			

Aug 2005

Aug 1	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Aug 11	Thu	Perseid Meteor Shower Watch	Rooster Rock	9pm
Aug 15	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Aug 18	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm
Aug 20	Sat	Telescope Workshop	Swan Island	10am—3pm

Sept 2005

Sep1-4	Th-Su	Oregon Star Party	Indian Trail Springs	
Sep 12	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Sep 19	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Sep 22	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 9 Newsletter of the Rose City Astronomers September, 2005

In This Issue:

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

Let's Talk APERTURE!

Presented By Steve Swayze

All are Welcome!

Monday September 19

Social Gathering: 7 pm.

Meeting Begins: 7:30 pm.

Location: OMSI Auditorium

With a reputation from having made hand-figured telescope mirrors for 24 years now, Steve Swayze works exclusively on large apertures from 12.5 to 30 inches. Many amateur astronomers now enjoy the fantastic views from Steve Swayze's diffraction-limited optics. Three entries at the annual Riverside Telescope Makers convention, in three years, earned Steve Three Merit Awards in a row. The first award, in 1993, was for outstanding work on his beautiful 30-inch truss-tube reflector. The second award, the following year, was for his awesome 40-inch f/5 reflector (left photo).

As Steve shows his construction shop methods he will provide an informative, talk on amateur telescope optics. Please join the Rose City Astronomers and welcome Steve September 19th at the OMSI planetarium for this educational presentation.

RCA Memberships expired at the end of June. If you have forgotten or haven't gotten around to it yet, please renew by the next general RCA meeting. Those who have not renewed will have their subscription to rca-l cancelled, and the Rosette Gazette will no longer be mailed. About one-third of the active club members have not renewed yet and many of them will no longer receive the Gazette by mail.

New Moon
September 3, 11:46 AM PDT

First Quarter Moon
September 11, 4:37 AM. PDT

Full Moon
September 17, 7:01 PM. PDT

Last Quarter Moon
September 24, 11:42 PM. PDT

Club Officers			
President	Carol Huston	(503) 629-8809	StarsCarol@comcast.net
Past President	Peter Abrahams	(503) 699-1056	telscope@europa.com
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VP Observing	Matt Vartanian	(503) 244-5023	matt@vartanian.net
VP Community Affairs	Jeff Sponaugle	(503) 590-5522	jsponaugle@kryptiq.com
VP, Programming	Matt Brewster	(503) 740-2329	m_brewster@juno.com
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OSP Liaison	Dareth Murray	(503) 957-4499	darethlee@comcast.net
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Subscription Director	Larry Godsey	(503) 675-5217	larrygodsey@comcast.net
SIG Director			
Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.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. 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 and click on any of the links for magazines. Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

President's Message

By Carol Huston
September 2005

With all of the controversy surrounding the discovery of the 10th planet (or whatever they decide to term it), and WHO discovered this planet, and WHEN was it discovered, it behooves us to take a couple of steps back and think logically about the potential of any one of us stumbling across a new object in the sky.

Imagine some beautiful, dark, transparent night. You are closing out your deep sky hunting for the night and take one more peek through the eyepiece. Suddenly, you notice there is something there that seems strange, doesn't seem to belong. You quickly compare the field with your star charts and, yes, there is something different there! What is it? You watch it for a couple of hours and note that it appears to be moving with respect to background stars. Is this a new comet perhaps? Maybe you are the first person in the life of the universe to see this interloper from outside the Solar System! What do you do now? How do you report this wonderful discovery?

Before reporting, check your observation carefully to verify the accuracy of what you are seeing! Review your charts carefully to avoid potential misinterpretations that could lead to a false report. When using charting software, be sure that all of the settings correspond to your telescope's view. Include all stellar and non-stellar objects down to appropriate magnitude limits, and be sure that you understand that some guide-star catalog "artifacts" may in fact be stars. Turn on minor planets and comets and adjust them to match the date of your observation. When you are excited about a possible discovery, these steps may seem arduous, but can save you a lot of embarrassment later if they catch an error!

Read International Astronomical Union's (IAU) web site for complete instructions. This site includes a discovery form that can be filled out for submittal. If you do not include all of the information they require, your report may be ignored. This web site address is:
http://cfa-www.harvard.edu/cfa/ps/HowToReportDiscovery.html.

Immediately contact the Central Bureau of Astronomical Telegrams of the International Astronomical Union located at the Smithsonian Astrophysical Observatory, Cambridge, MA.

E-mail: cbat@cfa.harvard.edu.

Enjoy your new-found success and fame in the astronomical community, and remember your RCA observing buddies!

CAMP HANCOCK - DARK SKY STAR CAMP WEEKEND

Sep 30th – Oct 2nd, 2005

Please do not enter the camp area before 3pm on Friday

Registration Deadline is Saturday, Sep 24th

For complete information go to "http://www.rca-omsi.org/starschedule.htm"
Or see Larry at the RCA meeting on Sep 19th for Registration Form and information
Or call Larry at 503-675-5217 if you have any questions.

Just when you thought the viewing season was over with OSP, we have one more weekend star party to go this year. Camp Hancock with meals and cabins is a great outing for a cool fall weekend.

Registration:

Mail In Registration and Payment Deadline is Saturday, Sep 24th and there will be NO REFUNDS AFTER that date. We will cut off registration if we reach capacity of 100 people earlier.

All of the information for our outing, including pictures, downloadable Camp Hancock information, Clarno Fossil bed information, Driving maps and instructions, etc. will be found from a link on the Star Party calendar on the RCA web site.

Activity	Friday Apr 8	Saturday Apr 9	Sunday Apr 10	Total
Breakfast $4.50	NA	.	.	$
Lunch $3.50	NA	.	.	$
Dinner $5.00	.	.	NA	$
Bunkhouse Lodging $14.00 Per person per night	.	.	NA	$
RV/Trailer/Tent $8.00 Per person per night	.	.	NA	$
.	.	.	Totals	$

Please make checks payable to "Rose City Astronomers" and MAIL check and form to Larry.

Name:	Send this form and your Check
Address:	to
City, State, Zip	Larry Godsey
Telephone	P.O. Box 513
Email	Marylhurst, OR 97036
Number Attending	.
Food or Medical Requests	Phone: 503-675-5217 For more information

Deadline is Sept 24th - No refunds after Sep 24th

ASTROPHYSICS / COSMOLOGY SIG

Date/Time: Thursday, Sept 22, 7 PM.

Speaker: George Labelle

Topic: "Astro-Imaging 2005 an Overview"

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

Contact: Bob McGown (503-244-0078)

or Dareth Murray, (503-957-4499) for more information.

We are looking for speakers to lead a discussion. What is your favorite topic in Astrophysics or Cosmology? Let's talk about it! Call Bob at 503-244-0078 or email him: bobmcgown@comcast.net

Observing Site Committee

To lead and coordinate efforts of the Rose City Astronomers (RCA) in securing and managing a variety of observing sites for private use by members, and for community outreach and special events organized by the RCA.

Please Support the Site Fund RAFFLE at the Club Meeting by buying tickets or donating prizes. CASH accepted anytime!

Please Check http://nemoworld.com/RCA/sitehome.htm for more information.

Or Contact: David Nemo <david6366@msn.com>

Telescope Workshop

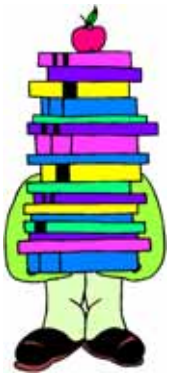
Date/Time: Saturday, September 17, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

For more information contact:

Director: John DeLacy johncdelacy@comcast.net

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, Jan Keiski.

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.rca-omsi.org/library.htm

Penny Henning recently joined the library staff. She joins Tammy Ross, Chris Steinkamp and Carolyn Nissen.

Jan Keiski (jikeiski@comcast.net)
503-539-4566

The Junior RCA is a program of observing for Children ages 13 and under! The program involves gaining knowledge and experience in observational astronomy with experts from the amateur astronomy community. The culmination of the child's work will result in recognition at the general meetings (if a child does not want public recognition, that's fine, too!). Each of these young amateur astronomers will receive a certificate and medallion, as well as the opportunity to become an expert resource for other child astronomers following them through the program.

Kids ages 12 and under are invited to attend the Junior Rose City Astronomers during the monthly general RCA meetings, the 3rd Monday of every month from 7:30 p.m. until 9:00 p.m. Contact Jenny Forrester at jenny@theforrest.org for information.

Rose City Astronomers 'Downtowner's' Lunch

Join us on the first Friday of each month for lunch at the Great China Seafood restaurant (Holidays and such may push us to the second Friday of some months, check the calendar at http://www.rca-omsi.org).
Cost is $6.50 for all-you-can-eat Chinese Buffet Lunch.
Great China Seafood restaurant
334 N.W. Davis, Upstairs on the 2nd floor
Great conversation and buffet lunch.
For more information contact: Margaret McCrea at mmcrea@nwlink.com

THE OBSERVER'S CORNER

Howard Banich

I've been doing a little observing with an 80mm f5 achromatic refractor the past year, which may seem a little puzzling because I've also recently finished building my 28" scope. The 80mm goes with me on trips when the big scope has to stay home, and I've had a blast with it. The little scope is so portable that it requires almost no thought for setting it up – it stays assembled to its mount – so all I have to do is find a chair and a decent place to plunk it down.

M13

M101

M11

80mm f5 refractor with dew shield – yep, the eyepiece cost way more than everything else put together.

Using this little scope has taken me back to my first scope, a Tasco 76mm f15 refractor. Although the focal lengths are different the medium to high power views are remarkably similar. Interestingly, even though I've lost significant sensitivity since I was a teenager I'm amazed at how much more I'm able to see now.

I should qualify that. I can see fainter objects but not more detail in the brighter ones. I guess this means I've learned how to use averted vision well enough to offset my loss of sensitivity, or maybe that I just know what to look for now. Probably both. So the good news is that age doesn't have to mean that an observer will see less over time because experience can make up for what the eye loses, at least for awhile. We'll see for how long.

Another thing I've noticed is just how comet-like some of the Messier objects look through the 80mm scope. I was observing near the beach at Lincoln City a couple months ago when this really struck me. I'd been looking at M13 and M92 in Hercules and then decided to have a look at M51. I was impressed that I could see the cores of the two galaxies so distinctly. Then M101 – and that's when it hit me. "Man, this thing looks just like a comet!" Then I backtracked to M51 – two comets – and then back to M92 and M13 - both very comet-like. M11 looked like a comet next, and that's when the fog moved in.

Messier must have seen these objects in much the same way, which is a pretty cool insight into what his thoughts may have been while at the eyepiece of his own telescopes (http://www.seds.org/messier/xtra/history/m-scopes.html). He did most of his observing with scopes that had very close to the same equivalent aperture as my 80mm so the views must have been fairly close.

It was impossible to tell visually that M101 was a galaxy and M13 was a globular cluster, which leads me think that Messier would be as astonished to know how different these two objects are. I plan to observe all the Messier objects with the 80mm scope over the next year or so to see how many of them really do look like comets. Of course some don't at all, like the Pleiades (M45) but it will be interesting to check the rest.

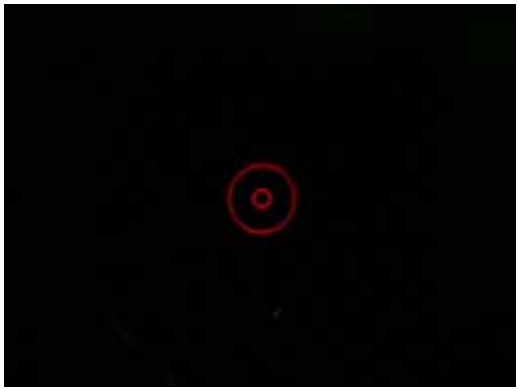
With modern eyepieces the field of view (fov) this scope can provide is huge – a 6.3 degree true field with a 31mm Nagler - and views of star clouds and dark nebula should be terrific under truly dark skies. Unfortunately, this is something Messier couldn't enjoy with his telescopes. A surprising thing happened while trying a TeleVue Paracorr in the 80mm - I found that they're not at all compatible. The Paracorr caused enormous distortion across the full fov. Obviously, achromatic refractors and Newtonians are very different. On the other hand, Barlows and all my eyepieces work fine.

Even with the very wide fov the scope provides with the 31mm Nagler, it's still hard to point without a finder. The Rigel QuikFinder is like a mini-Telrad – it projects two concentric rings on the sky versus the Telrad's three rings – and is a good fit for this size scope (http://www.rigelsys.com/).

Rigel QuikFinder

(Continued on page 6)

The Observers Corner *(Continued from page 5)*



QuikFinder two-ring 0.5 and 2.0 degree reticle

Scope without dew shield

I bought the basic scope at the Table Mountain Star Party's swap meet about 10 years ago and until this a past fall it sat on my desk waiting for me to do something with it. The tube is heavy duty aluminum and it came fitted with a very old eyepiece, so I think the lens itself is relatively old, but really I have no idea. It gives a decent star test and nice in-focus images up to about 160x, and that's what counts.

The cut off half with old eyepiece

I cut the tube in half and attached a rack and pinion focuser. Combined with a Williams Optics 2" diagonal (http://www.williamoptics.com/) this allows me to comfortably use 2" and 1.25"eyepieces, which is really what makes using the scope a pleasure. A small bracket fixed to the scope connects it to a shaky German equatorial mount, which for now is good enough.

There are many commercially available 80mm short focus achromatic and apo refractors on the market today so you don't need to cobble one together like I did to enjoy the same type of views. They're all a great way to enjoy the night sky.

OMSI Autumnal Equinox Celebration
September 17, 2005 - OMSI East Parking Lot

Fall officially begins with the autumnal equinox, which takes place on Thursday, September 22 at 3:23 p.m. PST, and the Oregon Museum of Science and Industry, Rose City Astronomers (RCA) and Vancouver Sidewalk Astronomers (VSA) will celebrate with a Star Party on Saturday evening, September 17. The Full "Harvest" Moon is still putting on a nice show and the museum will provide a large-screen, live image of luna by connecting a projector to a telescope. Jim Todd, OMSI's Kendall Planetarium manager, said that the angle of the sun will cause 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, Mars and other objects in the autumn night sky. The event is free and open to the public, and takes place in OMSI's east parking lot at 1945 SE Water Avenue, on Saturday, September 17 starting at 7:30 p.m. Potential star gazers are encouraged to call 503.797.4610 on September 17 after 3:00 p.m. for possible cancellation due to inclement weather

Jim Todd

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 10

By John W. Siple

Towa 80mm f/15 equatorial refractor telescope in mint condition, dated 1982.

Towa's Model No. 339 80mm (3.1") f/15 equatorial refractor was first spotlighted in the USA under the auspices of Meade Instruments in July 1972. Coast Navigation School of Santa Barbara, Calif. also placed advertisements in *Sky & Telescope* during that same year for the telescope. A contemporary cousin and later an heir to the bestselling Tasco Solarama and Sears Discoverer 76.2mm lines, the Towa equatorial refractor is a meld of time-tested technology and newer mass-production methods. Manufactured by Towa Optical Manufacturing Company, one of Japan's leading makers of fine telescopes, the #339 was distributed worldwide. Many thousands of units were sold over a twenty-year time period.

The 600 power telescope, due to its popularity, was remarketed by a number of different companies with their own model numbers. Meade ran continual ads for the small refractor during the 1970s, and labeled it their Model #300 (or #305 for 1 ¼" accessories—they changed the color of the dewcap to white). Tasco Sales, Inc. stamped the scope #10K and enticed the consumer in their catalogs with the statements: "Join the professionals. Enjoy highly refined images." Sears, Roebuck, & Co. repeatedly advertised it as "Our Finest Refractor Telescope," stock #3 (A-K) 4454C, in their store catalogs from 1977-81. Sans & Streiffe put #618 on the focuser plaque, while Jason/Empire, Inc. added a #324. Orion Telescope Center went with the flow and called it their Sky Explorer™ II. Never a cheap telescope, the "changeable" list price ranged from a low of $259.00 (Meade) to a high of $999.95 (Tasco).

The Towa is a complete telescope that is ready for viewing the heavens. It has a finely-made equatorial mounting with three setting circles (right ascension, declination, and azimuth), direct-reading latitude scale, bubble indicator for leveling, slow motion controls with extra-long flexible cables, and a fully-adjustable 5-ft. hardwood tripod with metal accessory shelf and illuminator. The mounting head is finished in attractive black-crinkle enamel. The top of the tube cradle has an integral camera mounting screw, where any camera with a tripod socket can be attached. The light-weight metal tube assembly offers a workable 0.965" rack-and-pinion focuser having hard-plastic knobs and a detachable 6X30mm viewfinder with bracket. The black screw-on metal dewcap and associated dustcover are on the other end along with the main objective lens. A standard push-pull arrangement is used for collimation of the air-spaced, achromatic objective lens. The observer, depending on the circumstances, can choose between the following five 0.965" eyepieces: SR 4mm (300x), HM 6mm (200x), HM 9mm (133x), HM 12.5mm (96x) and Ke 22mm (54x). A Barlow lens doubles the powers, while an erecting prism gives correct images for daytime viewing. The star diagonal is recommended for telescopic observations, and the set of solar projection screens is used for safely looking at the sun. Two cardboard cartons hold the disassembled scope during transport and storage (some companies, such as Tasco and Jason/Empire, Inc., provided a Styrofoam fitted hardwood case). An electric motor drive was available optionally. Other than the simplicity of the telescope's design, one reason for this small refractor's success is the superb figuring of the objective lens. The color correction is nearly perfect, and the high-power star images are crisp, clean and well-formed, about as close to textbook in a mass-produced telescope that is possible.

A perfect choice for the Towa instrument in the nighttime sky is a trio of double stars located on an 8.5° long line in the constellation Draco (the Dragon). The first star, situated at the NW corner of Draco's head, is ν Draconis or "Kuma" (mags. 4.9, 4.9; sep. 61.9"; p.a. 312°). In the supplied Ke 22mm ocular (54x) this wide double appears as a grand pair of perfectly-matched white stars (both are of spectral type A5). Moving 4° to the SW and at the mid-point of the celestial string, we come to the orb μ Draconis or "Arrakis"—the name given to the planet in Frank Herbert's novel 'Dune' (mags. 5.6, 5.7; sep. 1.9"; p.a. 14°). The apparent separation of this pair of dwarf stars is just above Dawes resolution limit for the telescope. A modern Nagler 4.8mm eyepiece (250x) shows this duo to best advantage, where the yellow diffraction disks (type F7V) are nearly in contact. The last of this set of impressive stellar systems, found by continuing on another 4 ½° in the same direction, is 16 & 17 Draconis (mags. 5.4, 5.5; sep. 90.3"; p.a. 194°), an intriguing multiple star as viewed through any scope. The star 17 also has a close companion (mags. 5.4, 6.4; sep. 3.4"; p.a. 108°), which is clearly visible at 133x. The combination of 90.3 and 3.4 arc-seconds is reminiscent of μ Boötis, another fine triple star system.

Favorite deep-sky objects in the rich Summer Milky Way shine brightly in the small refractor. Looking toward the direction of the galactic center in Sagittarius (the Archer) we find M17, the "Swan" or "Omega" Nebula (the author has always seen this emission nebula as a huge celestial numeral "2"). It certainly lives up to the namesake, and is an especially pretty sight in a Tele Vue 26mm Plossl eyepiece (46x). The Towa 80mm refractor telescope, though not great in aperture, delivers high contrast and sharply defined images of the denizens of our galaxy and beyond.

Towa Model No. 339 (D=80mm F=1200mm) as shown on the cover of the 18-page instruction manual. A common refractor, it went by a variety of different names and model numbers. The current secondary market value is $250-375.

A 5-INCH UNITRON REFRACTOR TELESCOPE

By John W. Siple

Unitron's magnificent Model #530 refractor telescope. "Picture yourself at the controls of this 5-inch Unitron," reads the advertisement. ©1972 Unitron Instruments Corporation. Reproduced by permission.

I was very fortunate to acquire a used 1960s vintage Unitron 5" f/16 refractor minus the equatorial mounting several years ago from a major telescope dealer on the Eastern Coast. This is a rare find, since the telescope is a low production-figure item. Unitron first starting selling the 5-inch models, number 18 in their line-up of superior quality refractors, in July 1959. They were designed as a bigger alternative to their very popular 4-inch instruments. Photo-Equatorial Model #510, mounted on a wooden tripod with a weight-driven clock drive mechanism, was priced at $2275 throughout most of the 1960s. It came with a considerable amount of observing accessories, including guide telescopes, 10 eyepieces, and an astro-camera. For an additional $110 a permanent pier could be purchased, this Unitron was called Model #530. The incomplete Unitron found secondhand was once part of a 5" tripod instrument.

A variety of auxiliary equipment was included with the purchase. Related items are a Unitron 3" (75mm) f/16 guide refractor with excellent optics mounted on wrap-around tube rings (called Uniclamps), a sliding counterpoise weight on a long rod (named a Unibalance Assembly), and brackets with clamps for a 2.4" (60mm) f/11.7 Unitron guide scope. However, the original 2.4" telescope was missing, another casualty of time and poor storage. A suitable replacement was found through a Unitron collector. A solar projection screen set rides off of the 2.4" Uniclamps. The rack-and-pinion focuser, marked D=127mm and F=2000mm, is Unitron's best unit, incorporating a vernier scale. A special adapter ring for the oversized 2.7" drawtube combined with a University Optics, Inc. prism star diagonal allows for the use of the larger 2" eyepieces. Surprisingly, this telescope did not come with a 10X42mm viewfinder, which is standard equipment on their 4" f/15 and some 5" f/16 models. A VERNONscope, Inc. 130mm f/8 Brandon cradle and a pair of Optica b/c rings hold the optical tube assembly to a 1980s Meade Research Grade equatorial mount.

The heart of any refractor is the prime air-spaced, achromatic objective lens. Initial star testing of the 5" f/16 Unitron achromat showed a broad turned-down edge, which was confirmed by Barry Greiner of D & G Optical Co. A turned-down edge is generated during the lens making process, and is often the result of selecting pitch that is too soft or applying excessive pressure with the polishing tool at the edge of the glass blank(s). In a refractor this can carry through to surface R4 (the eyepiece facing side of the rear negative meniscus flint element), which happened to be the case for the 5" objective (it is inherent to this particular Unitron objective alone, and is not indicative of the other 5" lenses in circulation). Since the outer perimeter of a lens contains a not insignificant percentage of the surface area of the glass, an inordinate amount of light is deflected when a turn-downed edge is present. Mr. Greiner tested, cleaned and added new foil spacers to the large doublet, but recommended masking off the outer ¼ inch of the lens. This resulted in a very fine 4.5" f/17.5 system.

Photographs courtesy the author 08-12-05.
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The front of the telescope showing the objective area and the Unibalance Assembly. An added camera bracket is mounted next to the cradle.

Unitron 5" f/16 refractor telescope tube assembly and auxiliary equipment remounted on a Meade Research Grade Equatorial. A superb performer, this jewel of a refractor is a favorite for double star hunting.

(Continued on page 9)

UNITRON *(Continued from page 8)*

Regardless, the doublet appears to be highly corrected and would satisfy most observers. The lens is free of spherical aberration and coma, the secondary color suppression is good, and overall it is a superb performer with nicely-formed diffraction patterns. The image quality in its stopped-down state would equal or beat any other equivalent achromat in its aperture class. The Unitron 5" f/16 refractor tube assembly is far more manageable than a larger 6" f/15, and has a streamlined, high-tech appearance, similar to an Astro Physics, Inc. unit. In other words, a very well engineered telescope!

Unitron guide telescopes: 75mm f/16 (left) and 60mm f/11.7 (right).

It's always a thrill to sit down at the eyepiece of a great refractor! The Unitron 5" has enough resolving power to tempt the discriminating double star observer with some critical views of hard-to-separate pairs (observations were made with the scope stopped-down ½-inch). The theoretical resolution limit for the refractor is 0.9 arc-seconds, approximately 1.0" stopped-down. δ Cygni (mags. 2.9, 6.3; sep. 2.5"; p.a. 221°) is no real contest for the penetrating power of the big Unitron, as the scope puts a lot of black sky between the two components. μ Cygni reveals itself as a beautiful triple star. The wide set of suns in this stellar grouping (AD: mags. 4.8, 6.9: sep. 199.0"; p.a. 52°, and AC: mags. 4.8, 11.5; sep. 48.6"; p.a. 277°) are obvious in a Panoptic 35mm eyepiece (57x). Increasing the magnification to 298x with a Meade 6.7mm Ultra-wide Angle ocular resolves the tight pair in the system (AB: mags. 4.8, 6.1; sep. 1.2"; p.a. 320°).

Delphinus (the Dolphin) harbors several remarkable globular star clusters, good targets for the 5" telescope. NGC 6934, found 3.9° due south of ε Delphini and 2' east of a magnitude 9.5 field star, appears as a magnitude 8.7 circular cloud of diameter 5.9'. This object takes increasing magnifications well, and is a pleasant sight in a Tele Vue 24mm Wide Field eyepiece (83x). NGC 7006, a much more difficult cluster to pick out from the rich background of stars, shines at magnitude 10.5 and has an apparent diameter of 2.8'. The latter globular is one of our galaxy's most remote gravitationally-bound objects, lying at an incredible distance of 185,000 light-years from earth.

Moving further southeast in the sky toward Pegasus we come to Equuleus (the Colt), which has some challenges for the moderately-sized refractor. The biggest challenge comes from ε Equulei, a colorful triple star located at the southwestern corner of the asterism.

The focuser region, showing Unitron's Super-UNIHEX rotary eyepiece selector on the main scope and their Model A unit on the 2.4" guide telescope.

Two beautiful suns, one yellowish-white and the other pale blue, orbit each other at an apparent distance of 10.7" (AB x C: mags. 6.0, 7.1; sep. 10.7"; p.a. 70°). The difficulty lies with the brighter star, since it has a very close companion (AB: mags. 6.0, 6.3; sep. 0.8"; p.a. 284°). Even at full aperture (5"), the best that the refractor can do at extreme power (600x derived from a Dakin 2.4x Barlow + Clave Paris Plössl 8mm ocular combination) is to show this pair as an ellipse of ashy yellow light, where the two diffraction disks have nearly merged together. The star system is 197 light-years away. In the same low power field of view with epsilon is the double star ∑2749 (mags. 7.6, 9.0; sep. 3.3"; p.a. 174°), a pretty pair of white stars cleanly resolved at 298x. λ Equulei (mags. 7.4, 7.4; sep. 2.8"; p.a. 218°), is found in the western part of the constellation, 3° north of epsilon. These twin pale yellow suns are a fine sight in a Clave Plössl 8mm eyepiece (250x).

Just across the border in Aquarius is the rich globular star cluster NGC 7089 (Messier 2). Shining at magnitude 6.4 and with an apparent diameter of 12.9', it is the region's showpiece. Beautifully framed using a Tele Vue 32mm Wide Field ocular (62x), the globular has a highly mottled appearance with a compressed core. M2 lies at a distance of approximately 37,500 light-years and contains over 150,000 red and yellow giant stars.

A grandiose instrument from a bygone era, the 5-inch Unitron refractor telescope is considered the penultimate among collectors. Much larger than the company's 4-inch equatorial models, this version still carries on the tradition of precision engineering and incorporating optics of superlative clarity. A seldom seen instrument, a limited number of both tripod and pier models were made and then distributed throughout the world. Although the refractor found secondhand was missing the original equatorial mounting (the Meade does a fine job of handling the scope), it has given many hours of enjoyment in viewing the firmament.

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

September 2005

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	

Sept 2005

Sep1-4	Th-Su	Oregon Star Party	Indian Trail Springs	
Sep 12	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Sep 17	Sat	Telescope Workshop	Swan Island	10am—3pm
Sep 17	Sat	OMSI Star Party!	OMSI East Parking Lot	
Sep 19	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Sep 22	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

Oct 2005

Oct 3	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Oct 17	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Oct 20	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 10 Newsletter of the Rose City Astronomers October, 2005

October General Meeting
"The History and Evolution of the Universe"
Presented by Dr. Jack Semura

We are the first generation to have a fairly detailed scientific history of the neighborhood that we call our Universe. Taking a broad perspective, we take a look at this history and focus on several questions about the evolution of our Universe. What are the basic building blocks that make up matter and forces and where did it all come from? If the Universe began in a state of initial sameness (i.e., symmetry) and if the underlying building blocks of matter and forces are identical, how can we explain all the richness and differences in the things we see around us? Jack Semura is a theoretical physicist at Portland State University who works in an area that he calls cosmological complexity—combining the ideas of complexity and cosmology to study evolution and emergence in the Universe.

Hubble Space Telescope Image of the Carina Nebula (NGC 3372) courtesy Greatest Images of NASA http://grin.hq.nasa.gov/

In This Issue:

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

All are Welcome! Monday October 17
Social Gathering: 7 pm. Meeting Begins: 7:30 pm.
Location: OMSI Auditorium

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
October 3	October 10	October 17	October 24

Club Officers			
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SIG Director			
Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.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. 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 and click on any of the links for magazines. Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

President's Message

By Carol Huston

October 2005

We are the chosen!

In August, the Astronomical League held its annual convention and meetings in Kansas City. At that time, RCA Member Bob McGown attended and presented to the AL Executive Council our proposal to host the 2007 annual convention (ALCON 2007) here in Portland. In preliminary discussions of this proposal, no less than a dozen Board members and RCA members have stepped forward to volunteer to be on the convention committee if we should get the nod. Several board members got together to develop a proposal that highlighted what RCA had to offer ALCON 2007, what Portland had to offer ALCON 2007, and what Portland had to offer participants and families as side extensions of that conference.

Against two other bids at Kansas City vying for the 2007 conference, RCA was chosen to host ALCON 2007. Preparations for an event such as this generally start around 18 months before the activity date, so in the months to come, you will be seeing a formal convention committee form and expand, and you will have an opportunity to volunteer to participate in the convention preparations. This will be a unique astronomical event that will promote astronomy in our community as well as on a national front with AL member societies. We are excited at the prospects of sharing what RCA has to offer. We are the chosen!

Book Review
"Mapping and Naming the Moon" by Ewen A. Whitaker

Image courtesy NASA and the National Space Science Data Center.

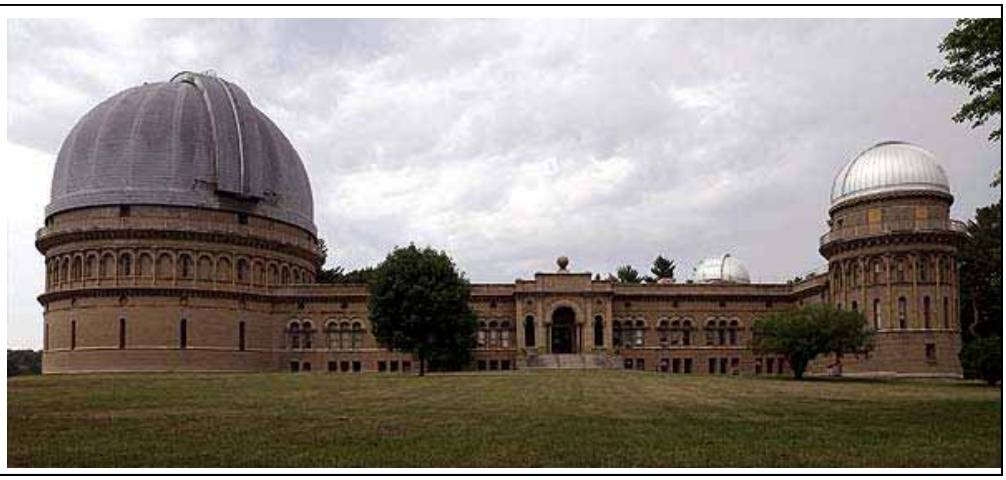
I began reading Mapping and Naming the Moon by Ewen A. Whitaker, subtitled "A History of Lunar Cartography and Nomenclature," with some concern that the book would be dry and overly scholarly, loading every other word with a footnote and burdening the text with arcane historic and linguistic details. Instead, Dr. Whitaker has written a book that is quite readable and interesting, and he thankfully placed all the arcane historic and linguistic details in a series of appendices, from A to V, at the back of the book. That leaves the core of the book for the main questions: Who first published maps of the moon, how did they label and name the various features, and how did the tangled net of discrepancies between various lunar maps and naming systems get straightened out to today's system? Dr. Whitaker is certainly qualified to discuss this topic. He was part of the IAU's Task Force for Lunar Nomenclature that did a great deal of the straightening out. The book is a bit of an historic detective novel. It tracks down the source of every name that has ever been applied to any lunar feature, whether we acknowledge the existence of that feature or not given today's hyper-sensitive imaging capabilities, and creates a clear picture of the muddy mess the IAU inherited.

Making the book even more readable, Dr. Whitaker divides each chapter into short sections with subtitles such as "Russell Goes in One Direction" and "Schröter Goes in Another." There's just enough touch of humor, straightforward classy writing, and not a trace of historical cheerleading or scolding or revisionism, to make the book a smooth read. My one complaint is that after Dr. Whitaker painstakingly traces out the roots of the problem, and then outlines the sensitive committee politics involved in creating a uniform system, he rushes the end. It's almost as if he says, "and then they all agreed on the solution and went home to bed. Good night." After he got me into the problem, I wanted to spend more time with the problem-solving. I like to watch good scientific minds at work.

I don't believe there's a single other book on this subject in the world. It's unique, interesting, and those 22 appendices at the end of the book make a great reference resource for dipping into. It is also generously illustrated with good reproductions of the maps in discussion so it's easy to follow the discussion, and includes Dr. Whitaker's knowledgeable comments on the quality of the popular reproductions or the cartography. If you're building a lunar section to your astronomical bookshelf, Mapping and Naming the Moon is a worthwhile addition. Set it on the shelf next to Rükl's Atlas.

Reviewed by Margaret Campbell-McCrea

YERKES, THE WONDERFUL AND FAMOUS OLD OBSERVATORY AND ITS GROUNDS ARE IN DANGER OF BEING SOLD TO A DEVELOPER by the University of Chicago. Yerkes is a 100-year-old observatory located in Williams Bay, Wisconsin. It has five research telescopes, one of which is the largest refractor in the world. If you would like to know more about this impending tragedy, please visit this website and take action as you see fit: **http://www.saveyerkes.com**



ASTROPHYSICS / COSMOLOGY SIG

Date/Time: Thursday, October 20, 7 PM.

Speaker: Dennis Anderson

Topic: "Space Time"

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

Contact: Bob McGown (503-244-0078)

or Dareth Murray, (503-957-4499) for more information.

We are looking for speakers to lead a discussion. What is your favorite topic in Astrophysics or Cosmology? Let's talk about it! Call Bob at 503-244-0078 or email him: bobmcgown@comcast.net

Telescope Workshop

Date/Time: Saturday, October 15, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

For more information contact:

Director: John DeLacy johncdelacy@comcast.net

Assistant: Don Peckham don@dbpeckham.com

Observing Site Committee

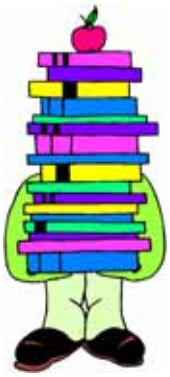
To lead and coordinate efforts of the Rose City Astronomers (RCA) in securing and managing a variety of observing sites for private use by members, and for community outreach and special events organized by the RCA.

Please Support the Site Fund RAFFLE at the Club Meeting by buying tickets or donating prizes. CASH accepted anytime!

Please Check
http://nemoworld.com/RCA/sitehome.htm
for more information.

Or Contact: David Nemo
<david6366@msn.com>

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, Jan Keiski.

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.rca-omsi.org/library.htm

Penny Henning recently joined the library staff. She joins Tammy Ross, Chris Steinkamp and Carolyn Nissen.

Jan Keiski (jikeiski@comcast.net)
503-539-4566

The Junior RCA is a program of observing for Children ages 13 and under! The program involves gaining knowledge and experience in observational astronomy with experts from the amateur astronomy community. The culmination of the child's work will result in recognition at the general meetings (if a child does not want public recognition, that's fine, too!). Each of these young amateur astronomers will receive a certificate and medallion, as well as the opportunity to become an expert resource for other child astronomers following them through the program.

Kids ages 12 and under are invited to attend the Junior Rose City Astronomers during the monthly general RCA meetings, the 3rd Monday of every month from 7:30 p.m. until 9:00 p.m. Contact Jenny Forrester at jenny@theforrest.org for information.

Rose City Astronomers 'Downtowner's' Lunch

Join us on the first Friday of each month for lunch at the Great China Seafood restaurant (Holidays and such may push us to the second Friday of some months, check the calendar at http://www.rca-omsi.org).
Cost is $6.50 for all-you-can-eat Chinese Buffet Lunch.
Great China Seafood restaurant
334 N.W. Davis, Upstairs on the 2nd floor
Great conversation and buffet lunch.
For more information contact: Margaret McCrea at mmcrea@nwlink.com

THE OBSERVER'S CORNER

Howard Banich

Selected observations from the 2005 Oregon Star Party

I recently found myself in a dream. I was at the 2005 Oregon Star Party under a wonderfully dark and clear sky, the seeing was excellent and I had a 28 inch f4 telescope at my disposal. Usually dreams like this end just as they're getting interesting, but then this wasn't an ordinary dream, this one was real - pinch me, I'm awake!

The 2005 edition of the OSP was awesome, and for six nights I had a blast. Arriving on Tuesday August 30 found an fairly large group of people already set up and ready to observe, which wasn't too surprising because there's always someone here before I show up. I packed up for home on Monday September 5 and was so tired that I felt like I'd been observing for a month, but then that's one of the hallmarks of a successful star party.

Great observing is what usually defines the success of a star party so rather than elaborate on the daytime events of the star party, which were excellent by the way, I'll stick to some observational highlights. Fortunately, there are a lot of those.

So what did I look at during this dream of a star party? Well hang on, here we go, night by night – selected observation from the 2005 Oregon Star Party.

Night 1, August 30 - 31
Clear from dusk to dawn, lowest temperature 38F. Slight breeze until about 11pm, then nearly calm. Moonrise about 3am.
Seeing 7 to 8.5
Transparency 9
Limiting magnitude 6.7+ , M33 easily visible with unaided vision

M22 was first. Even though it was low in the south from 44 degrees north it's still a glorious sight, especially when the seeing is steady. As I was looking at the globular at low power (105x) it was immediately apparent that the scopes tracking was way off. This required turning on my laptop to properly reset the latitude for the OSP site, and soon the wall paper image on my screen came up – which happens to be:

I like the real version a little better but this is nice too.

Minus the meteor, that was exactly the sky I saw looking south – pretty cool to see two versions of the same sky at once. Fortunately the latitude was easily reset, thank you Dan Gray, and I was quickly back to observing.

I made my way north up the Milky Way; the Lagoon, Trifid, Swan and Eagle nebulae and then the Small Sagittarius Star Cloud. They all looked fabulous and I found myself lingering on them each, but the Swan (M17) was stupendous. The weekend before OSP I'd installed a filter wheel and so this was my first chance to try it out. Rapidly switching from OIII, UHC and h-beta filters comparing the views was as much fun as it was instructive. Even though each filter needed to be slightly refocused it was usually obvious which one gave the best view.

In the case of M17, the UHC was best even though the OIII gave slightly better contrast. The unfiltered view had perhaps about 75% of the detail seen in the UHC view. The h-beta view was nearly dark.

After some excellent views of Barnard's E, the Ring Nebula and getting skunked by the planetary Abell 56 in Aquila, I settled in on the Saturn Nebula. This instantly became the best view ever of this great planetary.

Saturn Nebula sketch

Saturn Nebula sketch inverted

The central star was easily visible for about ten minutes at all powers up to 818x when the seeing was at its best This star is often obscured by average seeing conditions, which is most of time back home, so this was a rare sight. The interior of the planetary had the appearance of two nested rings tilted in respect to each other and sharing the ansae at each end. The ends of each ansae had a bright knot of material that were each a little wider than the arms. Now that I'm thinking about it, the overall effect was somewhat like a toy gyroscopes. Hmmm, "the Gyroscope Nebula"… nah, this one already has a great name.

The galaxy cluster Abell 347 was stupendous sight and easily found. Near the gorgeous edge on galaxy NGC 891, I counted 20 galaxies within a few square degrees. Cruising though at 197x for over an hour was great stuff.

The planetary Abell 2 was next. It showed itself as a round, vague glow that with enough power (467x) was seen with direct vision. It had a subtle but definite annular look, with the center slightly darker than the rim. A star was seen within the

(Continued on page 6)

The Observers Corner *(Continued from page 5)*

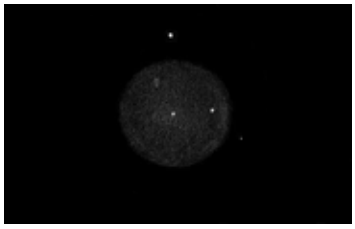
planetary, but it's obviously off center. Surprisingly, the view was best without a filter.

The moon rose about this time so I had my first look at Mars. For the first ten minutes the view was very sharp and clear, and by the time I had the binoviewer set up the seeing had started to soften. But those first few minutes with the 7mm Nagler were magical.

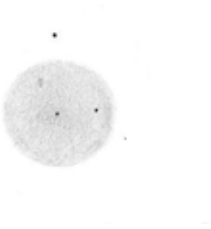
Night 2, August 31 – September 1
Clear from dusk to dawn, lowest temperature 38F. Slight breeze until about midnight, then nearly calm. Moonrise a few minutes after 4am.Lowest temperature 40F.
Seeing 7 to 8
Transparency 8 to 9
Limiting magnitude 6.7+ , M33 easily visible with unaided vision

I seem to start off clear nights at the OSP in much the same way – M22, M8, M20, M17, M16, and the Small Sagittarius Star Cloud. NGC 6520 and B86 are usually in the mix too. Notable in this tour was that I could resolve the five stars in the center of the Trifid nebula, a rare treat.

But my real goal for the early hours of darkness was the very cool planetary nebula, Abell 39. I'd seen it several times from western Oregon earlier this summer, but it was a much more memorable sight in a truly dark sky.



Abell 39 inverted sketch



Abell 39 sketch

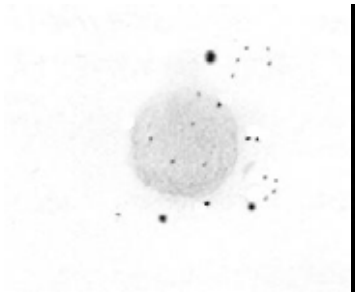
Abell 39, 3.5meter WIYN telescope

I could see that the perimeter of the planetary was distinct, maybe even a little brighter than the interior, which was a very even haze. The OIII filter gave the best view of the perimeter, and I could easily see two stars within the planetary without the filter, one of which was right at the center.

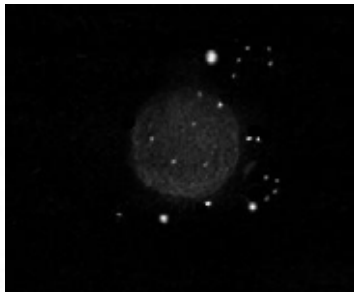
Also seen without a filter was a small, very faint and distinct bright area that's a distant background galaxy seen through the planetary – how cool is that! It took extreme averted vision and high magnification (654x) to pull it out, and I was thrilled to have detected it.

Overall, Abell 39 looked best at 197 with the OIII filter, and for me it became an instant classic. The reference photo was taken by the 3.5 meter WIYN telescope. I'm amazed that I could see so much of what's there.

Abell 72 is a planetary that's also joined by a faint galaxy, only this one is seen just outside the nebula. Also notable was the rich star field in and around Abell 72, and that none of them seemed to be the central star.



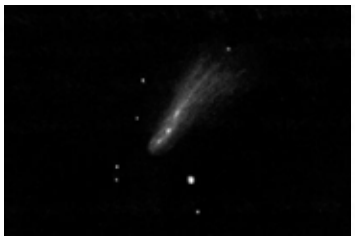
Abell 72 sketch



Abell 72 sketch inverted

The planetary was best seen at 297x and with the OIII filter, but the galaxy was seen only at 569x without a filter.

NGC 1569 is a unique galaxy. At first glance it has a distinct similarity to a comet, but closer inspection shows that something's going on toward the brighter end. Increasing the power improved the view up to 654x, where the three elongated bright areas toward one end were best seen. The view reminded me somewhat of photos of comet Shoemaker-Levy 9.



NGC 1569 sketch inverted

NGC 1569 sketch

The fainter, broader end of the galaxy seemed to be made of three streamers, adding to the appearance of a comet. It turns out that 1569 is an irregular star burst galaxy, and the bright knots are areas of intense star formation. A great sight, definitely a highlight.

The galaxy duo IC 298 A/B had been on my "observe!" list for several years, and in the early morning hours of this beautiful OSP night I finally swung the scope over for a look.

I'd noted this as the "number 10"galaxies on my charts, but I didn't expect to see a perfect number "10", as the reference photo I'd saved suggested at best that I see something that

(Continued on page 7)

The Observers Corner *(Continued from page 6)*

looked a lot more like the letters ”IC”. That would be more appropriate anyway.

It took some searching at medium high powers to see IC 2998A/B at all, and at 654x there they were -


IC 298 A/B sketch inverted *IC 298 A/B sketch*

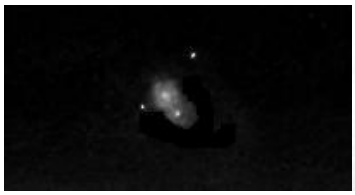
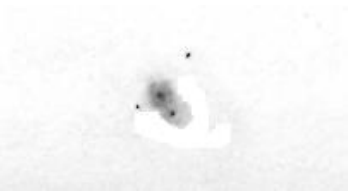
Although slightly upside down, they really did look like the letter “IC”. How about that!

A quick look at Mars followed, but I was mostly asleep by this point (post 3am-ish) that I wasn’t too disappointed that the view wasn’t as sharp as the night before. Time for some shut eye.

Night 3, September 1 - 2
High, thin clouds all night. Never overcast but always some clouds visible. Very clear in between though. Moonrise 5:13am, just a few minutes before twilight began. Lowest temperature 45F.
Seeing 7 to 8.5
Transparency 0 to 9Limiting magnitude 0 to 6.7+ , M33 easily visible with unaided vision when not obscured.

The clouds had been around for most of the day and didn’t look like they would totally clear during the night. Even so I was able to observe a few objects in the mostly clear parts of the sky, and they looked great. Seeing was nice and steady, which helped the quality of the views a lot.

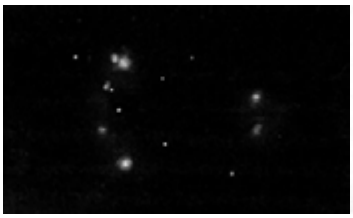
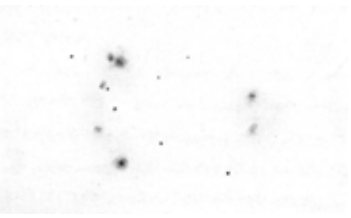
The Footprint Nebula, Mi-92, is small and needs good seeing to be able to see its shape well. The seeing was at its best when I made this sketch at 654x:

Footprint Nebula sketch inverted *Footprint Nebula sketch*

The sketch makes it looks more distinct and larger than what I saw at the eyepiece. This is a tiny object that gets swallowed up in average seeing, and getting a definite observation needs really good seeing. I feel darn lucky to have gotten such a top notch look. Best look was without a filter.

The galaxy cluster Abell 2634 is a huge, sprawling group of faint fuzzies that are fairly evenly spread around. The exception is a distinctive group of seven galaxies near the center of the cluster:

Abell 2634 GC sketch inverted *Abell 2634 GC sketch*

I tried magnifications of 197x to 654x, using the higher powers for this central group. The inverted sketch actually does a pretty decent job of illustrating what I saw at the eyepiece – terrific sight.

Mars was tantalizing in the early morning hours. The seeing was slowly improving as dawn began and I couldn’t take my eyes away from the eyepiece. Part of the appeal was a relatively bright field star in the same fov. It was slowly tightening up into a smaller and more stable image, with fragments of diffraction rings popping into view every so often, but the detail on Mars never really sharpened up as much as I thought it should. Even so, the best view came at 569x. Limb haze was not as bright as the previous two nights and the NPH was almost as bright as the SPC.

No matter, the best views were yet to come.

Night 4, September 2 - 3
High, thin clouds all night. Never overcast but always some clouds visible. Very clear in between though. New moon. Lowest temperature 40F.
Seeing 7 to 8.5
Transparency 6 to 3
Limiting magnitude 2 to 6.0 , M33 not visible with unaided vision at any time.

My sister Maryanne arrived from California today. The high clouds that had persisted all day hung around in varying thicknesses, but we did enjoy a lot really clear sky too. We shared views through her 12.5 inch f4 and my scope, and visited with friends well into the evening.

The Swan Nebula was the highlight of the early evening and provided astonishingly detailed views with the OIII, UHC and no filter at all. Later in the evening the Pleiades and M31 were tremendous through Maryanne’s scope – they were perfectly framed. The Pleiades were wrapped in nebulosity with the Merope Nebula as the most obvious part. It had a yellowish hue while the fainter nebulosity was whitish-blue. M31, 32 and 110 all fit in the same 35mm Panoptic field of view, and M31’s two dark lanes were prominent. A beautiful sight.

The seeing was quite good in the early morning hours and Mars looked terrific again - I’m going to have to make a sketch, but tonight wasn’t the time. The camaraderie of sharing views and visiting under the stars is a pleasure too rare to pass up.

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Night 5, September 3 - 4

Cloudy all day, but started to clear around 10pm. Mostly clear by 1:30am but some high clouds remained all night. The Moon rose after the sun. Lowest temperature 43F.
Seeing 8 to 9
Transparency 0 to 9
Limiting magnitude 0 to 6.7+ , M33 easily visible with unaided vision when not obscured.

The late afternoon clouds turned into a nearly overcast sky by sunset and it looked like we might get skunked. There was an internet chat going on with a group of amateur astronomers from Argentina (GAMA) in the satellite internet trailer and I joined in for awhile. They were having a nice dinner at the home of one of their members, and a continent away we were huddled in a small trailer - pretty darn cool really. But around 10pm the clouds started parting so the conversations quickly wrapped up and we happily made our way back to our scopes. It took several hours for the sky to become mostly clear, and some variable high clouds stayed around until dawn.

The big deal tonight was Mars. The best seeing of the star party settled in with the variable high clouds, and even though deep sky observing was still quite excellent at times it wasn't up to what the first two nights delivered. But with the great views of a 14 arc second diameter Mars that didn't matter.

By 4am just about every one still on the observing field had their scope on Mars even though it was obviously behind a band of thin clouds. Overall the image was nice and sharp showing excellent surface detail even without color filters.

I had a small crowd around the scope for about an hour during the best seeing period, and two guys in particular had the same comments after coming down the ladder. The were "amazed that a larger reflector could produce such a clean image" and each went back up for a second look. I think they were under the mistaken impression that a large reflector couldn't be a good planetary scope.

Aside from the great image quality, the most remarkable feature on Mars a dark notch on the terminator just at the edge of the North Polar Hood. At the time I thought it might be a shadow cast by the NPH, but later at home looking at photos on the "marsobservers" Yahoo group seems to show that this is really a dark surface feature right on the terminator, perhaps Propontis. Regardless, very cool to see. The NPH was very bright and blended into the limb haze that then joined into the SPC haze. The actual SPC was a small patch only slightly whiter and brighter than the surrounding clouds.

Mare Sirenum, Mare Cimmerium and Mare Tyrrhenum were the dominant dark features. The light feature Hesperia was seen rather easily between Cimmerium and Tyrrhenum.

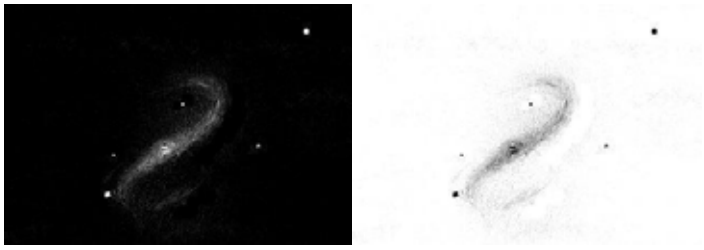
Aside from the dark green-grey surface features, the surface of Mars was a distinctive yellow-orange and quite 3D. I hope for another night of this quality near opposition when the Srytis Major region is in view. But whatever may come, this was great and I went to sleep with a big smile.

Night 6, September 4 - 5

Partly cloudy all day, but clearing began around 10pm. Clear by midnight and transparency continued improving until dawn. The Moon rose after the sun. Lowest temperature 39F.
Seeing 7
Transparency 0 to 9
Limiting magnitude 6.8, M33 obvious with direct vision by 2am.

We were treated to a beautiful sunset with way too many clouds, but eventually the sky completely cleared and we had a classic OSP sky. Very dark and transparent with good seeing until dawn - now we're talking, and I jumped into more galaxy groups. I took on Abell's 2162, 2197 and 2589 in a row and had a blast, but after three groups of faint fuzzies I was ready for something singular and relatively brighter.

The barred spiral galaxy NGC 7479 fit the bill. Although past the meridian by now (2am) it was still rather well placed. At first the two spiral arms were too faint to see easily and I wondered if I was looking at the right object. But with a few minutes of averted vision they slowly gained prominence, especially the top arm as shown in my sketch, and soon they were fairly easy to see. 7479 became an elongated, lazy backward "S" with a sprinkling of foreground stars to enhance the view. A lovely sight at 467x.



The inverted sketch isn't far off what I saw of NGC 7479's spiral arms.

Since M33 was so easy to see with unaided vision, it was now time for a look through the scope. The detail was overwhelming at first. The three main spiral arms were prominently subtle – easily seen but with low contrast. Numerous HII regions and huge star clouds dotted the spiral arms. There was also a large,

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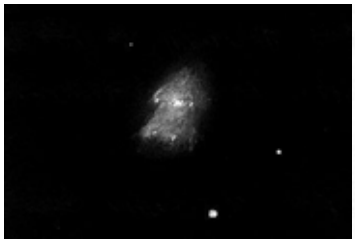
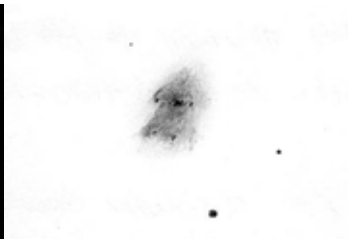
(Continued from page 8)
faint background to the main spiral arms that extended the width of M33 considerably. What an amazing view.

The brightest HII region in M33 is NGC 604, and it was blazing. It has a unique shape at higher powers, somewhat like a fir tree, and has several 17th magnitude stars embedded in it. The view of these details was terrific at 818x and the nebula was slightly enhanced with the OIII filter. The unfiltered view was best because the embedded stars were visible.



NGC 604 sketch inverted



NGC 604 sketch

It was now about 4:30am and Orion was about as high as it would get before dawn began. The Horsehead was next and it proved to be one of the better views I've had of this often difficult to see dark nebula. It was detectable without a filter and was quite obvious with the h-beta filter. I could see the gently curved edge on the top of the snout area which was pretty exciting as I'd seen this well only once before. But dawn wouldn't hold off forever so it was time to move on.

To M42, of course. You know those incredible images you've seen in magazines and on the web? Well, this was nothing like that. It was better. There were several color scheme's blending into each other. The turbulent electric turquoise that surrounds the Trapezium was the brightest and gradually blended into the much fainter interior nebulosity as a subtle rosy-grey. The two dominant wings were a brownish-ochre, and gradually blended into a soft grey, tufted arc that looped back around to the form a full ring. All this was punctuated by myriads of bluish-white stars from faint to blazing. Trying the OIII, UHC and h-beta filters presented fascinating changes in the appearance of M42 but the non-filtered view was by far the best.

The four bright stars of the Trapezium were closely attended by two fainter but readily seen E and F stars. The area around the Trapezium is littered with faint stars, like diamond chips laying within in translucent layers of velvet and smoke.

The Running Man (NGC 1973-75-77) nebula looked like a short time exposure of water flowing in a stream, a lovely sight. Just then dawn became apparent and the sky started to transition from black to a dark blue. Gradually, tints of orange and red graced the northeastern horizon complimenting the dark blue sky and fading stars. The only sounds were my breathing and heartbeat.

The 2005 Oregon Star Party was over and all that was left was to get some sleep, pack up and head for home. Bittersweet to a degree, but this ending was greatly tempered by all the new memories, camaraderie, and the undeniable fatigue. Six consecutive all-nighters take a toll, but I was still smiling for days after returning home.

Heck, I'm still smiling.

Comic provided free of charge by http://www.astronerds.com

BOARD MEETING MINUTES

September 12, 2005
OMSI Classroom 1
Ken Cone

President Carol Huston called the meeting to order at 7:15 pm

Board members present: Ken Cone, Patton Echols, Ed Epp, Dale Fenske, Larry Godsey, Ken Hose, Carol Huston, Jan Keiski, Dareth Murray, David Nemo, Greg Rohde, Matt Vartanian

Board Reports

- Secretary's Report – Ken Cone: Quorum (12) met with 12 voting members present.
- Treasurer's Report – Ed Epp: $14,254.01 balance on hand. Ed presented July1 through Sept 12 budget vs. actual expenses.
- VP Programming – Matt Brewster: no report.
- VP Observing – Matt Vartanian: Upcoming Star Parties: Sept 17th Autumnal Equinox, and Camp Hancock on Sep 30 – Oct 2 weekend.
- VP Community Affairs – Jeff Sponaugle: no report
- VP Membership – Ken Hose: $1,748 membership income, 58 renewals and 12 new members. Total is 191 member families.
- New Member Advisor – Jim Reilly: no report.
- Media Director – Patton Echols: discussion about advertising RCA star parties to the general public. OMSI parties are advertised by OMSI. RCA star parties are on the RCA web site. Having our own public star party might help recruit new members. Consensus is that it is better to introduce new members through the new member introduction process including star party etiquette. Public usually attends an "event" rather than just a star party. Outreach is providing an opportunity for public to be introduced to RCA. **AR: Matt and Patton will get together and discuss using media and star parties.**
- Sales – Sameer Ruiwale: no report
- Book Library – Jan Keiski: Jan will post something to the RCA bulletin board to get a laptop donation for the library.
- Telescope Library – Greg Rohde: Page for Telescope Library is now on RCA site including pictures, thanks Greg and Jan. 6" dob complete and in service. Orange C8 added bino-viewer and it is checked out. Swapped a scope with Camp Hancock. Added Coronado solar scope to library. Started working on 12.5 inch dob.
- IDA – Bob McGown: Bob McGown got photos of good examples of BAD lighting in San Jose. These will become part of a future IDA presentation.
- Magazine Subscriptions – Larry Godsey: $966.25 magazine sales for August.
- Webmaster – Dareth Murray: Renewed domain name for two years.
- Site Committee – David Nemo: Would like 20-30 min time at upcoming general meeting to talk about site committee fund raising. Discussion to include donations, life memberships, other sources of money. January meeting is potential. Following up with real estate agents for remote sites.
- SIGs, Gazette Editor, OMSI, Alcor, and JRCA. Rosette Gazette, Larry Deal, editor, received honorable mention for the AL's Mabel Stearns Award for astronomy newsletter excellence.

Old Business

- Action Item: Matt B & Greg to contact State of Oregon to communicate regarding Stewart State Park and Hilltop Tower for stargazing. Busy with OSP, not yet complete.
- Action Item: Matt B & Jim to look into possibility of acquiring BPA's C-14 for a permanent site. No action.
- Action Item: Dave and Bob to work up guidelines for lifetime membership. No action
- Action Item: Discussion on targeting donations – property, cash, and acknowledging donors. Tabled for next month's consideration.
- Action Item: Dale will work with OMSI to put together a packet of information to provide to people who purchase telescopes from OMSI. Dale talked with Jim, excellent idea. Need input on packet contents, board members to send Dale suggestions for packet contents. Ken suggested rework of new members packet.
- Action Item: Carol to send a note to the RCA bulletin board list requesting a volunteer to be SIG Director. AR complete, no results yet.
- Action Item: Jim Reilly to work with Dave Sandage to put together a list of mentors to help members who want/need assistance with specific astronomy topics or projects. Jim will connect with Dave next few days.
- Phone Line Report: Greg Rhode for Aug
  September 5th to October 3rd: Matt Brewster
  October 4 to November 5: Patton Echols
  November 6 through December 4: Matt Vartanian

New Business

- Bob McGown: ALCON 2005 Report. "We are the chosen" for ALCON 2007! Dareth passed out the ALCON proposal that Bob presented at the AL board meeting. Ours was the best of several presented. Concern is to not conflict with OSP week. No new moon needed for the conference as observing is not a requirement. Waiting for OSP 07 decision then Dareth will hold ALCON introduction committee meeting. Next deadline: need to submit fully flushed out plan by Aug 2006. Board voted to do proposal, **AR Dareth to get formal commitment from AL before board votes on doing actual conference**. Also need to understand downside and financial exposure if case something goes wrong e.g. natural disaster etc.

(Continued on page 11)

Board Meeting Minutes *(Continued from page 10)*

- Bulletin Board Discussion – "The GAP" getting those who have knowledge of various astronomy topics together with those who need it. How can we improve the education process. Carol will summarize the GAP discussion and bring back to board for discussion at a future meeting.
- NWRAL Discussion: Letter from Gene Dietzen. Carol discussed with Gene how NWRAL could be more effective organization. How does NWRAL add value? Examples include educational outreach, IDA effectiveness, information exchange with other NW clubs. Dale mentioned NWRAL in the past has hosted events and speakers at NW star parties. NWRAL also might host a convention. Some value to get connected to other NW clubs and exchange resources. NW states are Alaska WA OR Idaho. Carol will attend the Klickitat County Star Party and NWRAL meeting on Oct 1st.

AR: Jeff S. please print more new members' packets, email Ken Hose for quantity.

AR Greg R. "Bring your scope and learn to use it" as a table for January meeting.

Meeting adjourned at 8:45.

OMSI Mars Opposition of October 2005

OMSI, Rose City Astronomers Club and Vancouver Sidewalk Astronomers will host a special "Mars party" on the OMSI East Parking on Saturday evening, October 29. The event will be located on 1945 SE Water Ave from 7:00 P.M. - 12 A.M. (Sunset is 6:01 p.m. PDT). People of all ages are invited. This is a public service; there is no charge. Potential star gazers are encouraged to call 503.797.4610 on October 29 after 3:00 p.m. for possible cancellation due to inclement weather.

The volunteers will set up several telescopes, weather permitting. Jim Todd, OMSI Planetarium Manager will present informal talks on Mars during the observing party. Todd will present and describe the recent spacecraft images of Mars, their spectacular and puzzling results. In addition, the museum will provide a large-screen, live image of Mars by connecting a projector to a telescope.

Close approach: What's happening ? What's a Martian "opposition"? Earth and Mars are converging for a closest encounter on October 29 and 30, 2005 at a distance of 42.8 million miles. The actual opposition is on November 7, 2005 when the sun and Mars are opposed to each other in our sky. To the unaided eye, Mars will look like a bright red star or a pinpoint of light. At that distance, Mars shines brighter than anything else in the sky except the Sun, the Moon and Venus. The visual magnitude of Mars in late October will be a bright -2.3.

You might remember another close encounter with Mars, about two years ago, on August 27, 2003. That was the closest in recorded history and millions of people watched as the distance between Mars and Earth shrunk to 34.7 million miles. To casual observers, Mars will seem about as bright and beautiful in 2005 as it was in 2003.

The orbit of Earth and Mars bring them together a little over every two years. When the orbit of Earth and Mars brought them close together in 2003, it was the closest they've been in some 5,000 years and will be in some 60,000 years. This year's approach will bring them around 42.8 million miles, which is still impressive in astronomical terms. The best thing about the opposition this year is that it will be higher and therefore easier to see and will actually appear brighter.

We take advantage of these close approaches to Mars by launching research missions to Mars during such times. The 2003 opposition saw the launch of the Mars exploration rovers, Spirit and Opportunity. The 2005 opposition saw the launch of the Mars Exploration Orbiter, a probe designed to look for possible landing sites and subsurface water for future surface exploration missions. This probe is scheduled to enter Mars orbit in March of 2006.

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

October 2005

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					

Oct 2005

Oct 3	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Oct 15	Sat	Telescope Workshop	Swan Island	10am—3pm
Oct 17	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Oct 20	Thu	Astrophysics/Cosmology SIG	Linus Pauling House	7pm

Nov 2005

Nov 7	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Nov 17	Sat	Telescope Workshop	Swan Island	10am—3pm
Nov 19	Mon	RCA General Meeting	OMSI Auditorium	7:30pm

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 11 Newsletter of the Rose City Astronomers November, 2005

November RCA General Meeting

Join us for a special presentation in OMSI's Kendall Planetarium of The Search For Life, Are We Alone? and Passport To The Universe. The combination of these incredible presentations results in an immersive experience that educates and inspires, taking audiences on a virtual tour to the limits of the Universe and back again.

All are Welcome! Monday November 21

Social Gathering: 7 pm. Planetarium Opens: 7:30 pm.

Location: OMSI Auditorium

In This Issue:

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

Astronomy, Irish Style!
Meeting the Leviathan.

By Bob McGown & Dareth Murray

When observing the Whirlpool Galaxy, we usually start thinking about the Third Earl of Rosse and his first observations of that beautiful spiral nebula. After a really good session on Chuck & Judy Dethloff's scope at OSP two years ago, we decided to make the Whirlpool Star Party and the Leviathan in Ireland a traveling priority and a reality.

Upon our arrival at the Shannon airport in Ireland we promptly rented a car and headed south to see the "Burren" area in Clare County. It has some of the most interesting megalithic tombs in Ireland. We found a stone fort dating back to the 15th century but there are relics of human habitation dating back almost 6,000 years!

Down in the Aillwee Cave, only discovered in the 1940's, we explored winding tunnels past two beautiful cave waterfalls. Inside the cave there was still the skeleton of a bear preserved - the species has been extinct in Ireland for thousands of years!

The famous Poulnabrone Dolmen, ancient burial site in the Burren

(Continued on page 2)

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
November 1	November 8	November 15	November 23

Club Officers			
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Subscription Director	Larry Godsey	(503) 675-5217	larrygodsey@comcast.net
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Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.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. 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 and click on any of the links for magazines. Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

Astronomy, Irish Style!

(Continued from page 1)

There were more passages to explore with ropes and scuba gear; however we opted to take dynamite blasted tunnel back to the visitor center quarried into the limestone mountain. On our way out of the Burren, Bob even got to do some rock climbing on castle walls and outcrops.

We then headed to the small village of Birr, site of the Whirlpool Star Party. By-the-way, driving on the left on Ireland's narrow roads after staying awake for 54 hours was an out-of-body experience for both passenger and driver! We drove into Birr and barely missed a sign for "The Ring," the Bed & Breakfast we had reserved months ago. It turned out that several other Whirlpool Star Party attendees were staying there too. The Ring is a working farm surrounded by fields of black & white cows. It is noted for the huge ancient circular ditch surrounding it which can be seen from the air.

We dropped our luggage off there and returned to Birr to search for the star party. We went to the Rosse Castle Demesne but the gate was closed. Wandering around the village, we finally discovered that the star party itself was being held at Dooley's, a nearby pub. In the back of the pub is a large meeting room where we found members of the Shannonside Astronomy Club getting the room ready for the next day's events.

The Shannonside Club banner – see the smiling Oregonian underneath!

We started talking to David Bell, Whirlpool Star Party founder, and after finding out about Bob's "Observing Mars" presentation at OSP, he insisted on giving us free registration and banquet tickets if Bob would do a key-note presentation after the Saturday banquet! Bob was also encouraged to put up his

(Continued on page 3)

Astronomy, Irish Style!

((Continued from page 2)

Cosmic Expansion and Cosmic Blueprint light cone diagrams on some panels holding other interesting posters and astronomy exhibits. Everyone was extremely friendly and interested in what kind of star parties and skies we have in Oregon. We did brag about OSP.

The Whirlpool Star Party is held in Birr because of its proximity to Rosse Demesne and the marvelous Leviathan telescope the Third Earl of Rosse built on the grounds in 1840. Amateur astronomers from all around the world have gathered here for twenty years for a weekend of presentations, exhibits and observing. This year luminaries of the astronomical world such as celestial cartographer Wil Tirion and Vatican astronomer Brother Guy Consolmagno mingled with local amateurs and telescope makers such as Peter Wise and Eammon Asbro.

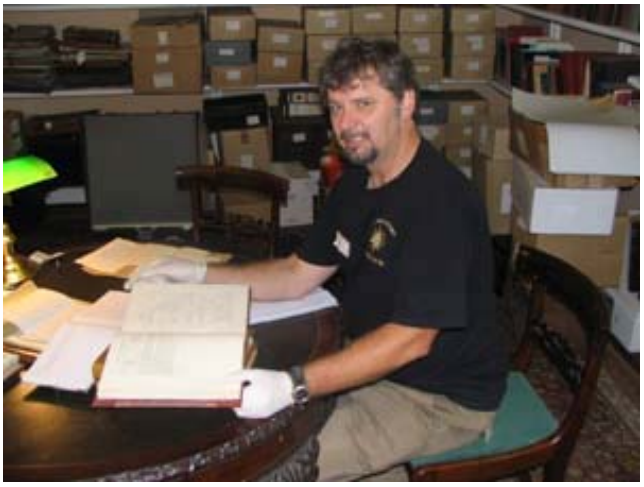
On Saturday we heard some great presentations from ESA's Mike McKay on the Mars Express and other ESA probes. There were many photo displays and telescope makers set up, showing off their latest creations. Peter Wise unveiled his 8" and 16" catadioptric Newtonian scopes. They have good views with a negative doublet and a positive doublet to create a very flat field image for astrophotography. Peter had first light with the 16" later that night at the star party.

Dareth in front of the Leviathan

We had time to stroll around the castle grounds and meet the Leviathan up close and personal. A German astronomer, Marcus with his Belfast college students who was acting as tour guide, said the first 10 IRA kids to jump the fence could climb the stairs to the very top of the structure! Needless to say, Bob was the first one over.

Going back to Dooley's for more presentations we then enjoyed a delicious banquet sitting with our new Irish friends. After dinner, we gave the "Observing Mars" presentation, complete with Marvin the Martian for humor. It was enthusiastically received.

About 9 p.m. we were given a ride over to the Rosse Demesne through a usually locked gate, coming in on a special road right in back of the Leviathan. It started out somewhat cloudy but everyone was hoping for the best. Brother Guy was an avid observer that evening as the clouds parted horizon to horizon and we got in about 3 hours of good observing. The Milky Way was brilliant with a visible light wedge of zodiacal light. It helps that the lights in the town of Birr are low-pressure sodium to reduce light pollution. The star party was counted as highly successful with about 50 participants and 25 telescopes.



Bob in the Rosse castle archives researching the NGC catalogue. Note the gloves!

Sunday morning we got locked in Rosse Castle as we sorted through historical manuscripts of John Herschel and the genesis of the NGC catalogue. Here we were with Charles Babbage and the Fourth Earl of Rosse (Laurence Parsons) in the archives room! Lady Rosse had invited us in to do more research in the archives and then realized she would be late to church. She quickly left us there alone in the castle. We didn't know she had locked the BIG front door behind her until I tried to get out!

It was a unique time to be sure and we didn't really mind that we were locked in! Bob was especially interested in early infrared astronomy and the historical observations and sketches of the fourth Earl. Along with us in the castle archives was Bob Bower, an astronomer/mathematician from Cambridge. He and Bob had been doing research in the archives on Saturday as well. It is a treasure trove of priceless manuscripts and sketches.

A few hours later, we regretfully made our escape through the servant's door on the back side of the castle, leaving Bob Bower to his continuing research. We explored the visitor center and historic museum inside the main castle walls before finally leaving Birr and the Leviathan behind. It was a grand experience and one we want to repeat someday.

A Wrinkle in Space-Time

By Trudy E. Bell

When a massive star reaches the end of its life, it can explode into a supernova rivaling the brilliance of an entire galaxy. What's left of the star fades in weeks, but its outer layers expand through space as a turbulent cloud of gases. Astronomers see beautiful remnants from past supernovas all around the sky, one of the most famous being the Crab Nebula in Taurus.

When a star throws off nine-tenths of its mass in a supernova, however, it also throws off nine-tenths of its gravitational field.

Astronomers see the light from supernovas. Can they also somehow sense the sudden and dramatic change in the exploding star's *gravitational field*?

Yes, they believe they can. According to Einstein's general theory of relativity, changes in the star's gravitational field should propagate outward, just like light—indeed, at the speed of light.

Those propagating changes would be a gravitational wave.

Einstein said what we feel as a gravitational field arises from the fact that huge masses curve space and time. The more massive an object, the more it bends the three dimensions of space and the fourth dimension of time. And if a massive object's gravitational field changes suddenly—say, when a star explodes—it should kink or wrinkle the very geometry of space-time. Moreover, that wrinkle should propagate outward like ripples radiating outward in a pond from a thrown stone.

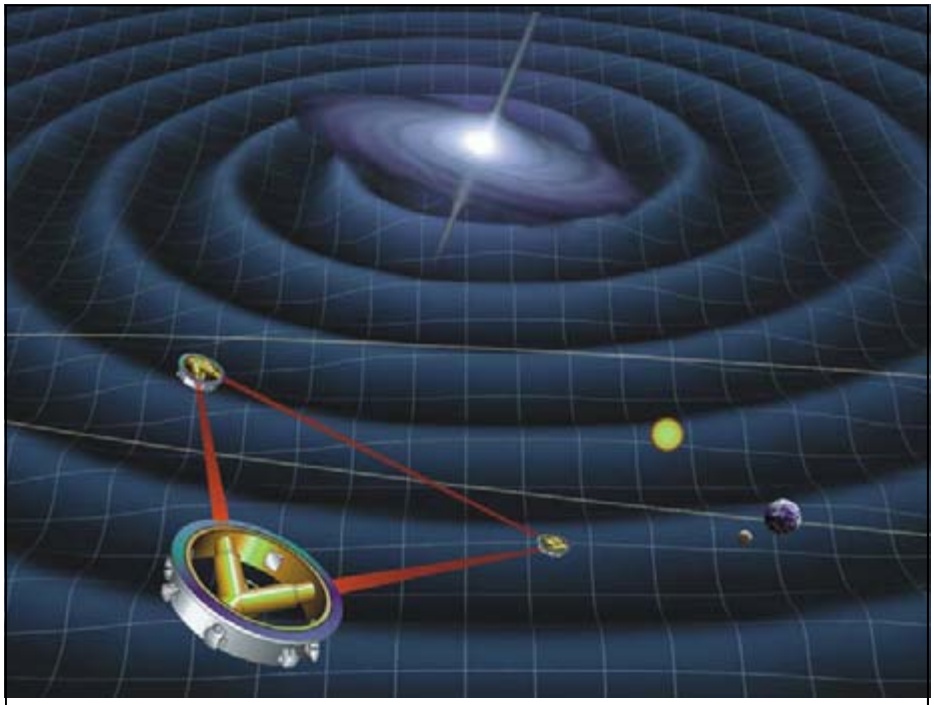
The frequency and timing of gravitational waves should reveal what's happening deep inside a supernova, in contrast to light, which is radiated from the surface. Thus, gravitational waves allow astronomers to peer inside the universe's most violent events—like doctors peer at patients' internal organs using CAT scans. The technique is not limited to supernovas: colliding neutron stars, black holes and other exotic objects may be revealed, too.

NASA and the European Space Agency are now building prototype equipment for the first space experiment to measure gravitational waves: the Laser Interferometer Space Antenna, or LISA.

LISA will look for patterns of compression and stretching in space-time that signal the passage of a gravitational wave. Three small spacecraft will fly in a triangular formation behind the Earth, each beaming a laser at the other two, continuously measuring their mutual separation. Although the three 'craft will be 5 million kilometers apart, they will monitor their separation to one *billionth* of a centimeter, smaller than an atom's diameter, which is the kind of precision needed to sense these elusive waves.

LISA is slated for launch around 2015.

To learn more about LISA, go to http://lisa.jpl.nasa.gov. Kids can learn about LISA and do a gravitational wave interactive crossword at http://spaceplace.nasa.gov/en/kids/lisaxword/lisaxword.shtml.



LISA's three spacecraft will be positioned at the corners of a triangle 5 million kilometers on a side and will be able to detect gravitational wave induced changes in their separation distance of as little as one billionth of a centimeter.

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

Silver Anniversary at Music of the Spheres

By Bob McGown & Dareth Murray

On a hot August afternoon we found ourselves once again winding our way up the serpentine, narrow road carved into the side of Mt. Hamilton, just outside San Jose. The 19-mile road was every bit as bad as we had remembered. On the way up, the right side of the road has no shoulder and the view way down into the valley was both beautiful and scary! This year we had decided to spend the whole weekend at Lick Observatory, taking in both Friday and Saturday nights. This year was the 25th anniversary of this remarkable fusion of music, art and astronomy.

On our way to San Jose we dropped by Lawrence Livermore National Laboratory facility. This is a premier research and development institution for science and technology as applied to national security. Besides being responsible for ensuring that the nation's nuclear weapons remain safe, secure, and reliable they also pursue programs in advanced defense technologies, energy, environment, biosciences, and space science. On this ultra-high security facility the world's largest lasers are used to "grow" giant KDP (Potassium Dihydrogen Phosphate) crystals, which are an enabling technology used for a variety of purposes, including frequency conversion and polarization rotation. With one of the largest computers in the world, the labs simulate nuclear explosions and their likely effects.

We were discussing this visit to Lawrence Livermore as we wound our way up Mt. Hamilton Friday night – to take our minds off the road! We arrived early to take in a special tour of the observatories on the mountain. There are presently nine, with several more coming online in the next few years. One of the most interesting new observatories will be the RPF or "Rocky Planet Finder", formerly called the "Terrestrial Planet Finder". It will be a 2.4-meter robotic telescope dedicated to planet search along with Doppler reconnaissance around target stars for NASA.

Rem, fellow astronomers & Dareth on the tour.

As usual, Rem Stone was an excellent host and led us to the 3-meter Shane Telescope dome for a tour and then some wine and cheese before the concert. Rem is full of information about large historic refractors.

He told us the history of the 48" French horizontal refractor at the 1900 World's Fair. The telescope was briefly used for projection viewing with a 60-degree sidereal stat to bring in celestial objects.

This summer the hall in the main building, which houses the 36" refractor, featured the space art of Chesley Bonestell, who just happened to be born in 1888 - the year the observatory was dedicated. As a boy he hiked to the observatory from San Francisco with a friend and observed the Moon on the 36" refractor. He was inspired to paint imaginary solar spacescapes by that visit and others to Mt. Wilson Observatory.

Photo of one of Bonestell's most famous paintings: Saturn as seen from Titan.

Unfortunately the San Francisco earthquake & fire of 1906 destroyed his first space paintings. After working in Hollywood in the 1930's as a special effects painter, he returned to his first love, space art.

One of his first paintings after a long hiatus, was an imaginary view of Saturn as seen from Titan, was published in Life magazine and is now considered a key influence on the development of space flight and astronomical art.

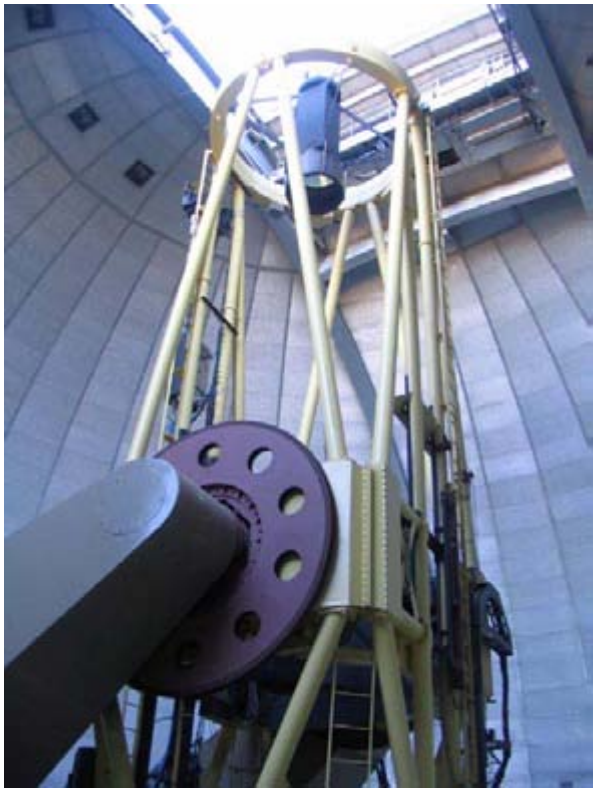
Surrounded by this amazing space art, we were then entranced by the music of classical guitarist Daniel Roest and Italy's famous Franco Morone.

Still vibrating, we then attended the Friday presentation given by Dr. Laurence Doyle from the SETI Institute. His talk was on information theory, animal communication and how that relates to the SETI mission. It was a fascinating and entertaining account of his recent work integrating information theory with the sounds various animals (of varying intelligence) create. Information theory, first developed by Claude Shannon of

(Continued on page 6)

Silver Anniversary *(Continued from page 5)*

Bell Labs, finds the basic rules that govern language and how to use these rules to determine the complexity of the society that produces it. Doyle is trying to compare dolphin whistles and baby babble in order to make predictions about extraterrestrial communications. He believes that by measuring the complexity of communications for different species on earth, we might get a good indication of how advanced an extraterrestrial signal is - and where humans might be found on that scale!



3-meter Shane Telescope

After a long visit in the gift shop and then grabbing some hot chocolate and a brownie, we were ready to observe on the 36" refractor. We were lucky enough to observe with Dr. Doyle who was full of interesting stories about Carl Sagan, Dr. Friedman, Bruce Murray and the Planetary Society. Sagan had recommended to Doyle that he do his PhD dissertation on the spokes of Saturn. We discussed the likely formation and morphology of the spokes, which were photographed by Voyager 25 years ago. The very latest images from Cassini now show "faint, ghostly" spokes.

On our trip down the mountain we saw the usual deer but also spotted a red fox, quite near the main dome parking lot! We also surprised a skunk, running alongside the road. We even caught a glimpse of a wild boar, perhaps even the one we dubbed "Niels Bohr" a few years ago! A great quote from that famous physicist comes to mind: "The opposite of a correct statement is a false statement. But the opposite of a profound truth may well be another profound truth."

Bob with the solar scope in front of Lick Observatory.

On Saturday evening, we enjoyed an incredible sunset that seemed to go on for hours. It also gave Bob a chance to do some "solar evangelism"! It was too warm in the hall so we enjoyed the last of the "Great Guitars" concert series on the outside stairs and caught the stray breezes coming up from the valley.

Dr. Greg Laughlin was the speaker for Saturday and was outstanding. His talk was on the "Future of the Solar System." Dr. Laughlin is the co-author of "Five Ages of the Universe" and a professor at University of California, Santa Cruz.

His whimsical approach was refreshing as he discussed the likely destruction of the Earth when the Sun finishes its life and becomes a red giant. One area of study Bob is working on is the possible moving of the Earth to a cooler orbit! This would be on a very long timescale involving redirecting a comet to pass closely by the Earth every thousand years or so. With the success of Deep Impact, the prospect of herding an asteroid or comet instead of merely deflecting it, directing an asteroid seems to be a possible scenario to give the Earth another billion years of life.

After the 36" refractor telescope closed down, we spent the evening observing with Alan Adler and Gene cross, two very proficient telescope builders and dedicated amateur astronomers. Their innovative telescope making techniques have inspired astronomers from amateurs to the builders of the Next Generation Space Telescope!

The time flew as we drove down the mountain that night talking about those possibilities. The road didn't seem half as bad either! It was another weekend of fine company, excellent music & art and a new collection of fresh ideas and new things to ponder.

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 11

By John W. Siple

Long considered a beginner's telescope, the ubiquitous 60mm (2.4") alt-azimuth refractor of 700mm focal length comes in a wide variety of materials, designs, and colors. The total number of model names is remarkable: J.C. Penny's Penncrest; Bushnell's Sky Chief Jr.; Celestron's Firstscope 60; Jason/Empire's 280x Constellation; Tasco's Starbrite, and so on, *ad infinitum*.

Sears Discoverer 60mm f/11.7 alt-azimuth refractor telescope, an optical winner. The current secondary market value is $50-75.

The Sears, Roebuck & Co. import from Japan, the nifty little 350-power Discoverer Model No. 412. 44340 (as engraved on the focuser plate of the example pictured at right—in their catalogues it shows as stock #3 (A/G/H/K) 4434C), was available from 1978 through 1984. The list price during its reign ranged from $139.99 to $159.99. Numerous other similar 60mm imports were also sold by Sears before and after the advent of this particular model. The #4434C incorporates drawtube macro-focusing and rack-and-pinion micro-focusing, and has an optical tube 27.5" long, finished in attractive black and white enamel. The corresponding lightweight aluminum fork-style mounting is supported by an adjustable two-section wooden tripod with rubber leg tips. (An earlier version, #4431C, came with a 47" extension leg metal tripod.) The accessory package is rudimentary, representative of this type of scope. There are three color-coded 0.965" oculars of SR 4mm, HM 6mm and Ke 20mm focal lengths, a Barlow lens, star diagonal, 5x24mm viewfinder, and solar projection set. A tripod shelf illuminator is a handy aid for selecting eyepieces and astronomical paraphernalia in the dark.

Although the mounting is of very basic construction, the glare-reducing coated optics are *really good* and the performance surprises even seasoned observers. Essentially perfect, they deliver royal views of the stars and planets. Using a Tele Vue 19mm Panoptic eyepiece (36x), NGC 663 in Cassiopeia is a rich, partially resolved open star cluster of circular shape that is centrally bisected by a dark lane. How did Charles Messier ever miss this one, since it is far more prominent than nearby M103? η Cassiopeiae or Achird (mags. 3.4, 7.5; sep. 12.9"; p.a. 317°), known as the "Easter-Egg Double," is a splendid sight in a University Optics, Inc. 4mm Orthoscopic eyepiece (175x). A colorful double star system only 19.4 light-years away, the primary star is a distinct yellow (spectral type G3V) and the secondary a ruddy purple color (type dM0) as imaged in the small refractor.

Celestron 6" f/8 Star Hopper® Dobsonian. Made in the U.S.A., the *original-style* models (no longer available) are desirable because of their superior high-tech features. They now bring $225-275.

The *original-style* (Model #10600-N) Celestron International 6" f/8 Star Hopper® Dobsonian telescope, manufactured at their factory in Torrance, Calif., was first introduced to the astronomy marketplace in January 1996. Celestron's expertise at mass-producing Schmidt-Cassegrains permitted a quick complementary switchover of their tooling facilities and optical bench equipment for the production of the Star Hoppers. The telescope could be purchased for $431.00 (including a finderscope and shipping--actual costs may vary) from Celestron's nationwide network of dealerships.

In the world of solid-tube Dobsonians, its attributes are state-of-the-art: the side trunnions are machined aluminum, the balance of the optical tube assembly is accomplished by a cleverly designed dovetail system, all integral parts are made of die-cast metal, and most significantly, the primary mirror is of a tapered design, allowing for ultra-fast cool-down times. Renowned for their exquisitely figured optics, the Star Hoppers are clearly the equal in performance to the famous Criterion RV-6 Dynascopes of the 1950s and '60s.

Observers immediately get the impression that they are using a Dobsonian of excellent quality and craftsmanship. Celestron's engineers obviously went that extra mile to produce a remarkable Dobsonian; everything about the telescope speaks of innovative, late-twentieth century technology. The telescope's primary mirror, as quoted from their advertisements, is a "V (visual)-Spectrum LTM Optical System featuring a unique molded Pyrex mirror, multi-coated for increased reflectivity, that provides superior optical and thermal qualities and it is mounted on the Pinnacle mirror cell." LTM is an abbreviation for low thermal mass, indicating that the mirror has 40% less mass than a traditional thick-

(Continued on page 8)

A SAMPLING OF TELESCOPES *(Continued from page 7)*

ness mirror, which translates into fast equilibrium with the ambient air temperature. The mirror measures only 0.38" thick at the edge or rim. The center backside of the primary mirror is permanently glued to the adjustable two-part Pinnacle mirror cell. The small, elliptical secondary mirror and holder is held in place by a single stalk spider support. To further enhance contrast and definition (without resorting to filters), important in discerning low-surface brightness objects such as the Helix or Veil Nebulae, the designers went to oversized Sonotubes and painted the inside with anti-reflective flat-black paint. The Sonotubes have a glossy black finish, making them all but invisible on dark, starry nights. The unique mount has a rocker box where the side boards are angled-in at 10°; lateral pressure is transferred to the base, a superior feature that provides greater stability over a standard square box configuration. A 25mm SMA (52°) eyepiece for 49x comes as standard equipment, and a smoothly operating 1.25" focuser brings objects to the proper focus. The optical train is precisely aligned by using The Collimation Tool.

Left to right 11", 6", 17½", 14", 8", 4½"

The 6" Celestron telescope has $(6/2.4)^2$ or 625% more light-gathering power than the Sears 60mm refractor, and a significant gain in resolving power (0.75 arc-seconds compared to 1.9 for the Sears). Again, as with the small refractor, the performance surprises even veteran observers. A focal length of 48" combined with the contrast enhancing features results in a jet black sky background and pinpoint stars. An optical test shows that the figuring is textbook perfect. Old favorites, such as the Ring and Dumbbell Nebulae, glow with an intensity rarely seen in a small aperture reflector telescope. Wonderful for beginners and old time observers alike of the heavens, the Celestron Star Hopper® 6" f/8 Dobsonians are eminently transportable (they easily fit into a Honda Civic or similar). Best of all is that Celestron also sold an 8" f/6 version with the exact same advanced features. (The product line was later augmented by larger 11" f/4.5, 14" f/4.5 and 17.5" f/4.1 sizes with mirrors supplied by Discovery Telescopes.) A basic diminutive model, their 4.5" with a focal length of 910mm, was a great gift item and starter telescope. Each wears a badge of distinction on the side of the rocker box depicting the most prominent member of our Local Group of Galaxies, the grand spiral M31 in Andromeda.

The promotional literature in Celestron's 1999 Telescope Catalogue, page 29, quotes *Astronomy* magazine about the Star Hopper® line of Dobsonian reflector telescopes (see the accompanying picture above):

> Star Hopper® is a milestone on the road toward a better commercial Dobsonian telescope. Star Hopper's innovative mirror, mirror cell and adjustable altitude bearings, combined with its crisp, sharp images more than meet what every Dobsonian owner hopes to have in an easy to use, backyard telescope.

A separate review of the 6" f/8 Star Hopper® by Alan MacRobert can be found on pages 56-60 of the December 1996 issue of *Sky & Telescope* magazine.

Telescope Workshop

Date/Time: Saturday, October 15, 10:00 AM - 3:00 PM

Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

For more information contact:

Director: John DeLacy
johncdelacy@comcast.net

Assistant: Don Peckham
don@dbpeckham.com

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, Jan Keiski.

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.rca-omsi.org/library.htm

Jan Keiski (jikeiski@comcast.net)
503-539-4566

BOARD MEETING MINUTES

October 3, 2005
OMSI Classroom 1
Ken Cone

Board members present: Peter Abrahams, Matt Brewster, Ken Cone, Ed Epp, Larry Godsey, Ken Hose, Carol Huston, Jan Keiski, David Nemo, Greg Rohde , Jeff Sponaugle, Matt Vartanian

Board Reports

- Secretary's Report – Ken Cone: Quorum (12) met with 12 voting members present.
- Treasurer's Report – Ed Epp: $ 15,178.97balance on hand. The CT12 was filed in August. I will file the IRS forms due in November in October. AL Dues paid $1,280 on 6/27/05.
- VP Programming – Matt Brewster: October speaker is Dr. Jack Semura of PSU Physics dept. on Cosmology. Winter Social plans: look for Gazette notice for Holiday Meeting on December 12th.
- VP Observing – Matt Vartanian: Final star party of the year, Oct 29th at Larch, plus OMSI star party on Oct 29th. Star Party Schedule for 2006 is solidifying. Complete schedule will be published early in 06.
- VP Community Affairs – Jeff Sponaugle: One grade school and one middle school requested RCA speakers on Astronomy, in November. Jeff will coordinate the speakers through the RCA email list.
- VP Membership – Ken Hose: $1,195 membership income, 140 renewals and 10 new members. Total is 240 member families.
- New Member Advisor – Jim Reilly: Jim plans to hold another orientation at his home in early November, he will finalize a date before the general meeting so it can be announced and posted in the November Gazette.
- Media Director – Patton Echols: *Via e-mail:* Besides the ongoing discussion of an outreach SP, we've had one media request for statistical info about the RCA. We should appear in the Oregonian Metro Almanac some Thursday in the next few weeks.
- Sales – Sameer Ruiwale: no report
- Book Library – Jan Keiski: New donated book "Star Gazer ". A big RCA THANK YOU to Michael Cole who donated a laptop to the library.
- Telescope Library – Greg Rohde: busy month, new web page showing 13 scopes. Last month 8 scopes went in/out of library. ETX-125 donation. The 10 inch "blue beast" needs to be rebuilt into a DOB.
- IDA – Bob McGown: no report
- Magazine Subscriptions – Larry Godsey: $ magazine sales for September.
- Webmaster – Dareth Murray: no report
- Site Committee – David Nemo: Site committee did not meet this week, no report
- SIGs: Ken Cone will be taking over as SIG Director.
- OMSI – Jan report from Jim: The rolling racks of library materials and sales items will be stored behind the planetarium after the auditorium construction is finished. At last OMSI star party, the PGE lights (south of OMSI) are for security cameras. OMSI will work with PGE to turn them off for future star parties. November RCA general meeting in planetarium for a pair of special shows.
- Alcor, Gazette Editor, and JRCA – no reports.

Old Business

- Action Item: Matt B & Greg to contact State of Oregon regarding Stewart State Park near Vernonia. Greg showed a preliminary map of the state park. They plan an area for night time star gazing including an observing tower. Stewart park is located between Hy 26 and Vernonia. Matt and Greg will keep interfacing with park officials.
- Action Item: Matt B & Jim to look into possibility of acquiring BPA's C-14 for a permanent site. Bonneville has yet to inform Jim officially of a decision on the Celestron C-14 telescope. Item still open.
- Action Item: Dave and Bob to work up guidelines for lifetime membership. Dave handed out comparison data from other clubs, what they charge, how they approach membership and observing site access.
- Dave passed out a spreadsheet showing a breakout of how member dues fund each major expenditure category of the annual budget at different membership levels. Newsletters are a significant expense for RCA, most other clubs around the country do not support a paper newsletter. Discussion of what is the purpose of a lifetime membership, usually to start a club or for funding a major project such as the site committee. Dave will develop a proposal for lifetime membership.
- Action Item: Discussion on targeting donations – property, cash, and acknowledging donors. AR rolled into above item for future.
- Action Item: Dale will work with OMSI to put together a packet of information to provide to people who purchase telescopes from OMSI. No report
- Action Item: Jim Reilly to work with Dave Sandage to put together a list of mentors to help members who want/need assistance with specific astronomy topics or projects. No report
- NWRAL Discussion: Carol will attend the Klickitat County Star Party and NWRAL meeting on Oct 1st. Carol couldn't get info about star party so didn't attend – thinks it may have been rained out.
- AR: Jeff S. please print more new members' packets, email Ken Hose for quantity. complete
- AR Greg R. "Bring your scope and learn to use it" as a table for January meeting. complete
- Phone Line Report: September 5th to October 3rd: Matt Brewster
    - October 4 to November 5: Patton Echols
    - November 6 through December 4: Matt Vartanian
    - December 4 through January 2: Jeff Sponaugle

New Business

- Bulletin Board Discussion – "The GAP" - What could we be doing that we aren't? Carol will put together the three main areas that were discussed in the email discussion and send them out the board to be reviewed next month.
- ALCON 2007 – What do we do now that we ARE the chosen? Dareth elected as chair of the committee. Carol will ask Dareth for plan and schedule to present to the RCA board at next meeting.
- Elections: Patton has a nominee in mind for the Secretary position. Brief discussion on qualifications of secretary.

Meeting adjourned at 9pm.

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

November 2005

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			

Nov 2005

Nov 7	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Nov 12	Sat	Telescope Workshop	Swan Island	10am—3pm
Nov 21	Mon	RCA General Meeting	OMSI Auditorium	7:30pm

Dec 2005

Dec 7	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Dec 12	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Dec 17	Sat	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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org

The
Rosette Gazette

Volume 17, Issue 12 Newsletter of the Rose City Astronomers December, 2005

In This Issue:

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

RCA General Meeting
Monday, December 12th, 6:30 PM
Winter Social and Holiday Potluck

In keeping with annual tradition, the December meeting of the Rose City Astronomers will be a holiday buffet and social gathering for all family members to be held in the OMSI Cafeteria.

Each member is asked to bring a dish to serve 10-12 people.
If your last name begins with . . .

- **A to G, please bring a dessert**
- **H to S, please bring a main dish**
- **T to Z, please bring an appetizer or side dish**

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 of the RCA membership.

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 room for everyone who is interested in displaying items for the Swap Meet.

There will also be tables provided for interesting celestial displays. If you have taken any astronomy pictures this year and want to share them, this is your ideal opportunity. Members also bring their latest inventions and "astro stuff." If you have a fun gadget, item, or tool, please bring it in and show it off to the rest of the membership!

Note that December 12 is the SECOND Monday of the month rather than our usual third Monday. We hope to see everyone there!

New Moon	First Quarter Moon	Full Moon	Last Quarter Moon
December 1	December 8	December 15	December 23

Club Officers			
President	Carol Huston	(503) 629-8809	StarsCarol@comcast.net
Past President	Peter Abrahams	(503) 699-1056	telscope@europa.com
VP Membership	Ken Hose	(503) 591-5585	khose@comcast.net
VP Observing	Matt Vartanian	(503) 244-5023	matt@vartanian.net
VP Community Affairs	Jeff Sponaugle	(503) 590-5522	jsponaugle@kryptiq.com
VP, Programming	Matt Brewster	(503) 740-2329	m_brewster@juno.com
Treasurer	Ed Epp	(503) 284-5834	epp@zdome.net
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Alcor, Historian	Dale Fenske	(503) 256-1840	fenskedw@spiritone.com
Library Director	Jan Keiski	(503) 539-4566	jikeiski@comcast.net
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Observing Site Director	David Nemo	(503) 224-6366	david6366@msn.com
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OSP Liaison	Dareth Murray	(503) 957-4499	darethlee@comcast.net
Camp Hancock Liaison	Glenn Graham	(503) 579-1141	the.grahams@verizon.net
Subscription Director	Larry Godsey	(503) 675-5217	larrygodsey@comcast.net
SIG Director			
Youth Programs Director	Jenny Forrester	(503) 504-8070	jenny@theforrest.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. 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 and click on any of the links for magazines. Larry Godsey, 503-675-5217, Subscription Coordinator, will be taking renewals and new subscriptions at the Magazine Table before General Meetings. Please make checks out to "RCA" and allow two months for your subscription to be renewed.

President's Message

By Carol Huston
December 2005

The Holidays for Astronomers

During the holiday season, people start looking around for gifts for their loved ones and friends. For the astronomy enthusiast in your life, this can present you with a number of opportunities as well as challenges. If you are unfamiliar with astronomy gear, take some time to connect with a seasoned member to get some advice. A good start would be contacting the New Member Advisor, Jim Reilly, who has a listing of mentors who can help you figure out a number of different things. Any of the board members could also give you some assistance with this.

First of all, if you are interested in a buying a telescope, it is important to do some research before you buy. A rule of thumb: if a telescope makes claims about having "450 power!" (450X) or more, don't buy it. There are lots of cheap instruments readily available on the market -- in local department stores or local discount stores -- that do not perform very well for astronomical use. There are several articles and booklets in the RCA Member Library that provide information on choosing a telescope and appropriate accessories. Again, talk to other club members. The variety of instruments RCA members have range from binoculars to large reflectors, from refractors to Schmidt-Cassegrains. Each instrument has its advantages and disadvantages, so it is important that you determine your needs in order to match them up with the equipment that fits them the closest.

There are other great accessories and ideas for your astronomy enthusiast. The RCA Sales Table at each general meeting has a myriad of books, charts, calendars, lights, t-shirts, and gadgets, etc., that are priced way below regular market for members' benefit. The annual calendars are out now and they have spectacular celestial images on them as well as handy astronomical information.

And, a gift membership to RCA also makes a wonderful gift that keeps giving the whole year. We prepare a nice certificate and include a member packet to make a wonderful presentation to an individual or family.

A reminder: RCA's Holiday Social gathering will be held the SECOND Monday of December (December 12) at OMSI in the cafeteria section. We hope to see you all there for our annual potluck!

Awards

Patrick L Hanrahan,
Messier
Award Number 2242
All 110 Messier Objects

For more info visit:
http://www.astroleague.org/al/obsclubs/obsclub.html

During RCA's November general meeting, the 2006 RCA's Officers were elected as follows:

- President – Carol Huston;
- Vice President, Membership – Ken Hose;
- Vice President, Communications – Matt Brewster;
- Vice President, Community Affairs – Jeff Sponaugle;
- Vice President, Observing – Matt Vartanian;
- Treasurer – Ed Epp;
- Secretary – Andy Phelps.

Telescope Workshop

When: Saturday, December 17, 10:00 AM - 3:00 PM

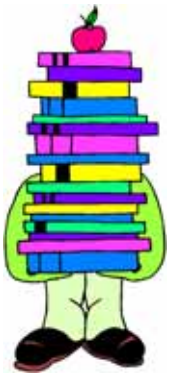
Place: Technical Marine Service, Inc.
6040 N. Cutter Circle
on Swan Island

For more information contact:

Director: John DeLacy johncdelacy@comcast.net

Assistant: Don Peckham don@dbpeckham.com

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, Jan Keiski.

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.rca-omsi.org/library.htm

Jan Keiski (jikeiski@comcast.net)
503-539-4566

Orientation Meeting for New RCA Members

If you have joined our club recently, or have little experience with astronomy, you might be uncomfortable about seeking answers to any number or questions: what to buy, what to see, when and where to look, what does NGC stand for, and other questions that reveal your inexperience. All of us in the club began there too, so let us help you with a new-member* orientation at 7PM, Friday December 9th at the home of Jim Reilly, the RCA New-Member Advisor. (Feel free to come later, I will be up until 10 if you're still shopping for that perfect astronomy gift!) We will spend an hour or two talking about astronomy: I'll fill you in on some of my astro-experiences (including memories of when I was new at this) and you can ask questions about this great hobby. I will not have every answer on the spot, but together we can figure out the next person to ask & we'll find the answers!

Some of the topics we'll cover:

- Club resources and how to access them.
- How to prepare for and participate in star parties.
- Helpful tips on what you'll need to get started.
- Introduction to observing programs.
- Generic review of equipment (with props!).
- Volunteer opportunities with RCA.
- Question and Answer (more than one of each, if necessary!)

Please RSVP by contacting Jim Reilly (503-493-2386, or jimrpdx at granitic.net); let me know how many are coming with you so I can grab the right number of chairs. Remember also to bring along your new-member packet for reference; I'll have a few spares, just in case. This informal session will be geared to helping you make the most out of your participation in RCA, so feel free to pass along any advance questions and topics when you RSVP.

** You don't have to be absolutely new! Slightly used members are also welcome.*

Additional information and map at:
http://www.xprt.net/~spacer/astro/newmem.htm

A SAMPLING OF TELESCOPES FOR THE AMATEUR ASTRONOMER—PART 12

By John W. Siple

Unitron Model 114 2.4-inch altazimuth refractor telescope. An example from the 1970s of museum quality, it is easily worth $600-700.

The ancient Japanese religion of Shinto, written as the Way of the Gods, stresses "right practice" and "sensibility" in everyday life. In business, these seemingly esoteric principles were applied to the manufacture of a new line of refractor telescopes introduced in October 1951. Called Unitron, a union of the words *uni* (meaning one) and *tron* (throne)[1], these telescopes shook the world of amateur astronomy for decades to come.

The ever-popular Unitron Model 114 (Product No. 16501), a 2.4-inch f/15 altazimuth refractor telescope, was imported into the U.S.A. from Tokyo, Japan by United Trading Co. (later Unitron Instruments Corporation). Located in Boston, Mass., their instruments could be purchased either by mail order or directly from the showroom. The list price remained constant at $125 until the early 1970s, but then rose dramatically as a result of inflation. United Trading Co. expended considerable resources to publicize its telescopes; *Sky & Telescope* magazine carried so many of their advertisements that it became known as *Sky & Unitron.* The outside back cover often showed Model 114 with all of its bells and whistles; many a youngster, attracted by the telescope's obvious quality and special features, saved every penny from their newspaper routes to garner one of the prized marvels.

Beginning amateur astronomers forty or fifty years ago, as today, were faced with some basic models to choose from. Back then, the choice was far more limited. In general, the budget allowed for either a 2.4-inch or 3-inch refractor, or a 4 ½-inch Newtonian reflector (buying a Criterion Mfg. Co. Dynascope 6-inch was another avenue often taken). Unitron refractors were considered at the high end of the chain, with dreamy altazimuth mountings, where the observer manipulated the motions

(Continued on page 5)

Model 114's workhorse, an air-spaced, achromatic 2.4-inch (60mm) objective lens of 35.4-inch (900mm) focal length.

{This article is intended for informational purposes. The author can be contacted through RCA.}

Advertisement from the *UNITRON ASTRONOMICAL TELESCOPES Including the New OBSERVER'S GUIDE.* ©1958, United Scientific Co.

A SAMPLING OF TELESCOPES *(Continued from page 4)*

with precision-geared micrometric controls; a corrosion resistant duralumin (a lightweight, strong alloy of aluminum often used in aircraft construction) optical tube finished in glossy white; furniture quality mahogany tripod legs and fitted storage cabinet; and a carefully-figured objective lens that imaged objects with crystal clarity.

The coated objective lens is fully corrected for spherical and chromatic aberration. Astigmatism and coma, along with any other optical interferences of the diffraction image, are at a minimum. The specifications are marked in white lettering along with the Unitron name on the inner cell that holds the lens. Prior to about 1958, the cell and focuser had an engraving of 62mm for the diameter of the lens, instead of the more commonly seen 60mm during the high demand years of the 1960s and '70s. An outer lens cell, which is permanently mounted directly on the telescope tube, is threaded to accept the inner cell holding the objective lens. Unusual for Japanese 2.4-inch imported refractors, the fully-baffled optical tube has an outside diameter measuring 2.7-inches. (Many refractors from that era house lenses in metal tubes not much bigger than the nominal diameter of the lens itself—oversized tubes, such as those used in Unitron refractors require fewer light baffles, and restrict harmful eddies and pockets of air turbulence to the outer boundary for a steadier image.)

In August 1955, a new mounting bracket or cradle was added to the altazimuth mounting as a replacement for the original-style mounting flange. This permitted the observer to rotate the optical tube assembly 360° and to position it lengthwise for proper balance. In the late 1950s several other minor changes in the design occurred: metal knobs and wing nuts on the mounting were replaced with neoprene (the single knob on the focuser was also changed); the sharp, metal leg tips at the end of the tripod legs for anchoring the telescope into place at the observing spot went to nose-cone shaped plastic; and a 6 x 23.5 or 4 x 19 viewfinder was substituted in place of the smaller 5 x 16 version. Still an instrument that stood out in craftsmanship and appearance, sales skyrocketed as result of the Apollo Moon Program and then continued on at a high pace.

Early 1950s 2.4-inch tube and integral mounting flange. Unitron is truly the king of refractors.

The Unitron refractor has a suite of quality observing supplies. To avoid fumbling eyepieces in the dark, an ingenious device called a Unihex is inserted into the focuser. At the simple flip of the rotary wheel, one of six eyepieces of the person's choice snaps into position for viewing pleasure. Alternatively, an erecting prism for revealing terrestrial panoramas, or a star diagonal for astronomical viewing, can be substituted in place of the Unihex. Four 0.965" eyepieces are included with the telescope, but the accessory package was often modified over the lifetime of production. A solar projection set is an extremely useful add-on, since partial and total solar eclipses can be monitored with complete safety at a comfortable distance from the observer's chair.

The winter night sky has many secrets that the hidden powers of the Unitron refractor can divulge to the patient observer. Pointing the telescope in the direction of Orion's Sword, we find ourselves in the midst of what John Herschel described as, "The breaking up of a mackerel sky when the clouds of which it consists begin to assume a cirrus appearance...." A sight to behold in *any* telescope, the little 2.4-inch Unitron refractor proves its worth by resolving the quadrangle of stars known as the Trapezium, or θ^1 Orionis, at M42's heart into its four components (CD: mags. 5.1, 6.7; sep. 13.4"; p.a. 241°, and AB: mags. 6.7, 7.9; sep. 8.8"; p.a. 31°). In a Clave Paris 10mm Plössl eyepiece (90x), the 2.4-inch shows the multiple star system embedded in a swirling mist of glowing, greenish star stuff.

The Lady and the Unicorn, La dame à la licorne, a triumph of artistic talent of the Middle Ages in Europe.

The constellation Monoceros the Unicorn, occupying a privileged position just to the east of Orion the Hunter and in the winter Milky Way, first appeared on star charts drawn up by Johannes Kepler's son-in-law, Jakob Bartsch, in 1624[2]. The glory of the Unicorn was captured in the famous The Lady and the Unicorn Tapestries, woven in Flanders in the early 16th century. A total of six tapestries, considered collectively as one of the world's greatest art treasures, represent the six senses: hearing, sight, smell, taste, touch and love (A mon seul dèsir—panel shown at left)[3].

(Continued on page 6)

A SAMPLING OF TELESCOPES *(Continued from page 5)*

Glowing fiercely at the Unicorn's right cornet[4] is (Sir William) Herschel's Wonder Star or β Monocerotis, the finest triple star in the heavens. A Cave Orthostar 6.6mm ocular (136x) gives a grand view where the multiple star system appears as a slender triangle of closely knit, matched white suns (AB: mags. 4.7, 5.2; sep. 7.3"; p.a. 132°, and BC: mags. 5.2, 6.1; sep. 2.8"; p.a. 106°—all are spectral type B2). Light left the tertiary star system 700 years ago in its long traverse to earth.

Dangling like a multi-faceted jeweled amulet from the Unicorn's face is the astrophotographer's favorite, the Rosette Nebula. At 90' in breadth, nearly three times the apparent diameter of the Moon, the nebula is so large that its most heavily illuminated portions are designated with separate NGC numbers (2237, 2238, and 2246). Occupying the central hole of this nebulous wreath or annulus is the glittering star cluster NGC 2244, its brightest dozen members forming a distinctive rectangular shape in the 2.4-inch Unitron refractor. Far from city lights, this interstellar complex can be glimpsed as a star-like object with the unaided eye. The extremely hot O-type stars of NGC 2244 are the source of ultraviolet radiation that causes the nebula to fluoresce, and their strong solar winds have swept the immediate area clear of gas and dust, accounting for the cloud's striking visual appearance. The star cluster's lucida, 12 Monocerotis, is a yellow giant star shining at magnitude 5.85. A Tele Vue 40mm Plössl eyepiece (22.5x), with a relatively wide field, is best suited for observing the region and star cluster. Using a Lumicon Oxygen-III filter, the northwest quadrant (NGC 2237-8) of the Rosette Nebula dominates, and appears as a wide ghostly arc. A pair of binoculars is also an ideal choice for looking at the Rosette Nebula because of its size and low surface brightness—10 x 70s bring out major portions of the celestial ring nicely. Large amateur telescopes can take greater advantage of Deep-Sky, UHC (ultra-high contrast) and Oxygen-III filters, where not only filamentary structure is evident, but localized small spots called globules (places of future solar systems) are seen. The entire complex is 4,900 light years away and has an estimated diameter of 90 light years.

Shining down on earth from the heavens, and in the position of the Unicorn's eye, is Plaskett's Star (V640 Monocerotis). The star is found just to the north of the Rosette Nebula (theorized to be part of the structure), and lies 1.5° to the southeast of 13 Monocerotis. First studied in 1922 by J. S. Plaskett of Dominion Astrophysical Observatory (Victoria, B.C.) through their huge 72-inch reflecting telescope, it was the most massive spectroscopic binary system found in our Galaxy during the last century. The visual magnitude is 6.05 and both supergiant stars are of type O8, with strong emission lines in their spectrum. The two components weigh in at 51 and 43 times the mass of the Sun. They are exchanging considerable amounts of material because of their close proximity to each other, and this mass transfer is significantly modifying the evolutionary history of the system. At 53x with a Tele Vue 17mm Plössl eyepiece in the Unihex, this bluish-white star, which helped earn John Stanley Plaskett the Bruce Medal in 1932, appears as a lone wolf in its region of space.

The Unitron Model 114 2.4-inch altazimuth refractor telescope, masterfully engineered and built to last for generations, is an archetype of post World War II era, high-end (and relatively expensive) refractors. Unitron instruments, stored away in attics and closets for decades, when reactivated for astronomical observations, perform just as well when they were first purchased. There are no buttons to push, no mouse-clicks to be made, no computer icons to follow. A wonderful feature for restorers of fine vintage instruments is the interconnectedness or interchangeability of Unitron parts. This makes replacement of a lost or broken part a reality, since the manufacturer of Unitron equipment, Nihon Seiko Kenkyusho, Ltd., stopped production in 1989. The market for collectible telescopes is driven by both demand and condition. A well kept, functional Model 114 with its original accessories and case(s) can bring $450-700 in today's marketplace.

ENDNOTES

[1]Scottish tron is also spelled tröne. Taken literally in Old French, tröne translates into throne. Other interpretations are open for discussion.

[2]The exact dating of the constellation Monoceros the Unicorn is uncertain. Considered a modern constellation, with stars none brighter than 4th magnitude, the first to plot the stars into a recognizable pattern is speculative. There is evidence that it may have existed in antiquity as a known entity.

[3]Readers might find Chevalier's bestselling book worth investigating. It is a fictionalized account, grounded on historical fact. Jean Le Viste, a main character in her novel, who reputedly commissioned the tapestries, was a nobleman in the Courts of Valois Dynastic Kings Louis XI and Charles VIII. In 1489 he became head of one of the Royal Courts of Justice. Chevalier, Tracy. *The Lady and the Unicorn.* New York: Penguin, 2004.

[4]Selected anatomical points throughout Monoceros are based on Johannes Hevelius's 1687 work *Firmamentum Sobiescianum sive Uranographia*. A critique about Johannes Hevelius of Danzig, a uranographer (celestial cartographer) of high standing, can be found in *Uranometria 2000.0, Vol. I,* pages XXIII-XXV, by Tirion, Rappaport, and Lovi.

THE OBSERVER'S CORNER

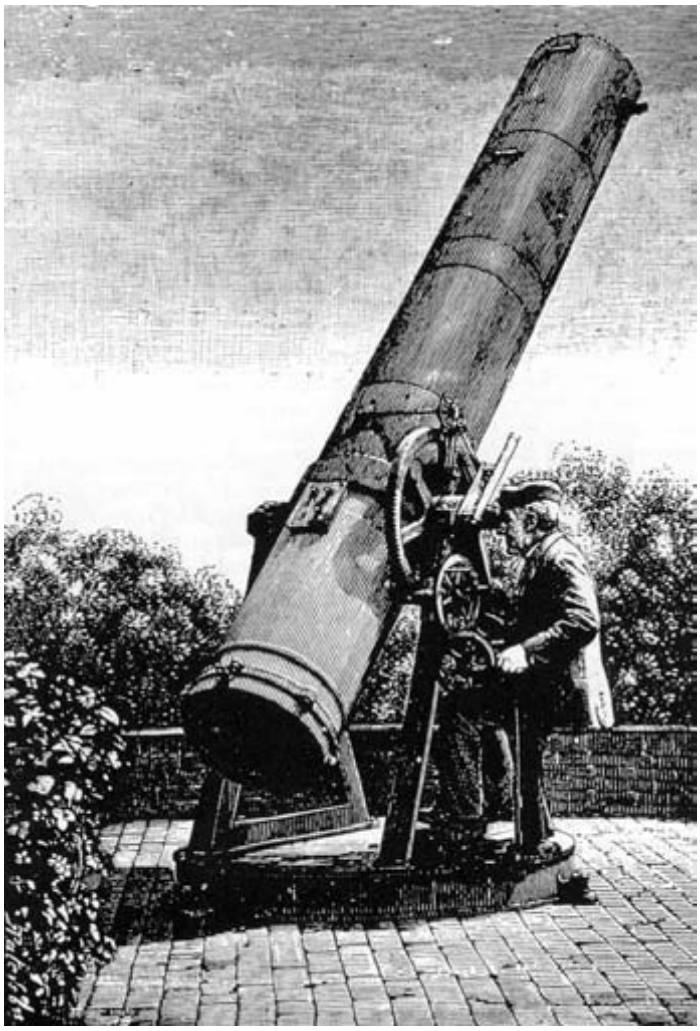
Howard Banich

Some interesting and significant telescopes of the past

I've recently read two books regarding the history and development of the telescope. Aside from gaining some insights into how this remarkable instrument came to be in all its present forms, a few of the telescopes described struck a chord of intrigue. And that's the subject of this article.

The first Naysmith focus telescope

You may have seen or read about the "Naysmith focus" on some of the worlds largest telescopes. This is when the focus of the telescope's optics are directed to the outside of the scope through the center of the altitude bearing, which enables an observer, camera or other instruments to be securely mounted in a fixed position.



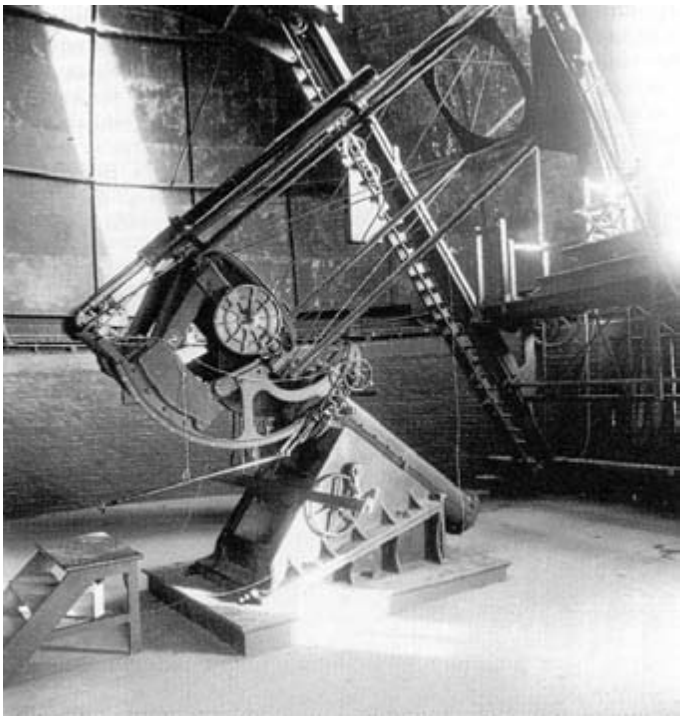
This novel and convenient arrangement was first built by Scottish engineer James Naysmith in approximately 1845 in the 20"alt-az telescope pictured above. Naysmith's interest was primarily studying the moon, and eventually worked with James Carpenter to write an 1871 book on their theory of lunar crater formation.

The optical arrangement is essentially a Cassegrain with a flat Newtonian mirror intercepting the light beam and sending it to the outside of tube, in this notable case in the center of rotation of the altitude bearing. This scope also represents one of the first successful convex Cassegrain secondary mirrors.

Naysmith referred to his telescope design as making "Gigantic telescopes at once Easy and comfortable", which I'm sure his was. It's not difficult to imagine a modern alt-az drive and goto system attached to Naysmith's telescope, and how much fun it would be to ride with the telescope while it slewed and tracked objects. How cool would that be?

The Crossley Reflector

In 1879 G. Calver made a 36" silvered glass mirror for Edward Crossley, an amateur astronomer from Halifax, England. What makes this mirror interesting was that it had an f5.8 focal ratio, a huge decrease in what was normal for the day (f10 to f9-ish). Crossley donated his telescope to Lick Observatory in 1895 and in 1900 the mirror was refigured and remounted into the instrument shown in this photo:



What grabs my attention are the four truss tubes with 8 guy wires to stiffen the optical assembly. So in essence this was the first string telescope, which was rediscovered by the RCA's Dan Gray a few years ago.

The Crossley reflector is often considered the first modern reflector because of its silvered glass mirror, equatorial mount and scientific productivity with photography and spectrography.

(Continued on page 8)

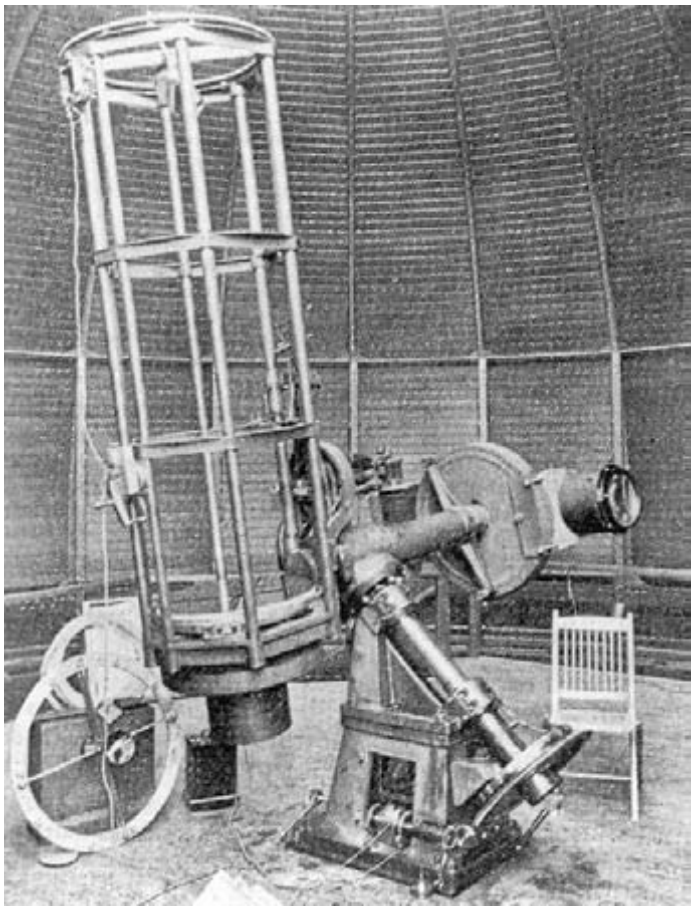
The Observer's Corner *(Continued from page 7)*

Ritchey's 24" f3.9

However, R.N. Wilson, the author of *Reflecting Optics*, volumes 1 and 2 makes the case that the first telescope to possess all the characteristics of a modern telescope was another instrument. In 1901 George Ritchey (of Ritchey-Chrétien optical system fame, among other achievements) built a 24 inch f 3.9 silvered glass mirror telescope with a German equatorial mount.

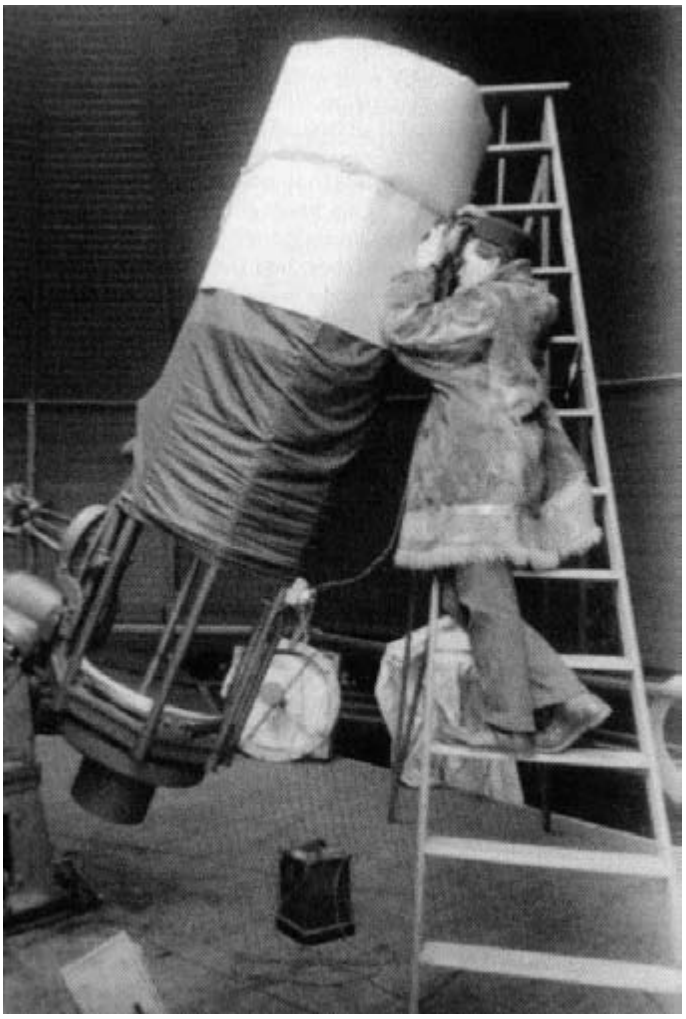
This was by far the fastest large mirror made at the time and enabled Ritchey to photograph large numbers of external galaxies that showed how photographically productive a fast reflector could be. It paved the way for Ritchey's work on the 60 inch, 100 inch telescopes and later G.E. Hale's 200 inch telescope.

The first photo shows the Ritchey scope soon after its completion at Yerkes Observatory:



First of all, the utter familiarity of the design is striking. The scope is set up as a Newtonian, but note the Cassegrain secondary cage and mirror at the bottom left of the photo. Right next to it is what looks like a battery for the motor drive. There also seems to be a camera attached to the counterweight. The optical assembly is remarkable in that the six tube open frame work tube is a design that's been making a comeback lately in amateur scopes of similar size.

However, the next photo is my favorite because it shows Ritchey observing at the Newtonian focus.



Anyone with a large Dobsonian can immediately identify with this photo. A 24 inch f 4-ish truss tube telescope with a cloth shroud (note the front end extension, which I imagine was black on the inside) and with the Newtonian focus accessible with a ladder is not unusual today. A scope this size is probably mounted as an Dobsonian today, but then it's also more likely to have a goto drive too.

Ritchey's 1901 scope was seen as significant advance at the time, and yet comparable scopes are now relatively commonplace amateur instruments, and that's pretty amazing. Sure, all sorts of technology that were once considered cutting edge are now readily available, but that doesn't have to lessen our appreciation for what can be considered the forerunner of today's large amateur reflector.

References

Reflecting Telescopes, volumes 1 and 2
R.N. Wilson
Springer-Verlag

Stargazer, the life and times of the Telescope
Fred Watson
Da Capo Press

BOARD MEETING MINUTES

November 7, 2005
OMSI Classroom 1
Matt Vartanian for Ken Cone

Board members present: Peter Abrahams, Patton Echols, Larry Godsey, Ken Hose, Carol Huston, Jan Keiski, Bob McGown, Dareth Murray, David Nemo, Greg Rohde , Matt Vartanian, Sameer Ruiwale

Non-board members present: Andy Phelps, Bob Bond

Board Reports

- Secretary's Report – Matt Vartanian for Ken Cone: Quorum (12) met with 12 voting members present.
- Treasurer's Report – Ed Epp: $ 17,015 balance on hand. The CT-12 form, due mid November, was sent to the Department of Justice several weeks ago. The amendment to the annual report was sent to the Secretary of State with the $50 fee in August. Our insurance was paid in July ($497.34)
- VP Programming – Matt Brewster: November meeting in planetarium; December is pot luck on second Monday; January is the information fair.
- VP Observing – Matt Vartanian: Nominal
- VP Community Affairs – Jeff Sponaugle: No report.
- VP Membership – Ken Hose: $593 membership income, 22 renewals and 4 new members. Total is 265 member families.
- New Member Advisor – Jim Reilly: No report.
- Media Director – Patton Echols: Nominal.
- Sales – Sameer Ruiwale: $261 in sales for October
- Book Library – Jan Keiski: Nominal
- Telescope Library – Greg Rohde: New solar scope ready for use. All other scopes in use.
- IDA – Bob McGown: Nominal.
- Magazine Subscriptions – Larry Godsey: $459.60 magazine sales for October.
- Webmaster – Dareth Murray: Nominal
- Site Committee – David Nemo: Nominal
- SIGs, OMSI, Alcor, Gazette, and JRCA: No report

Old Business

- NRWAL had a meeting with insufficient attendance to get vote. Will arrange online vote in November. Carol discussed ways that she felt NRWAL could be of benefit to RCA including addressing light pollution issues, and youth programs.
- GAP discussion: Carol stressed that we should all be aware that communication to our membership is crucial. Discussion followed regarding new members and special star parties with educational component. Several ideas suggested.
- Phone Line Report: Patton responded to several calls asking for information.
- November 6 through December 4: Matt Vartanian
- December 4 through January 2: Jeff Sponaugle
- January 9th through February 6th: Carol Huston

New Business

- Galileo awards: Awards committee discussed potential candidates.
- OMSI liaison: Ken Hose makes a motion and Greg Rohde seconds that Jan Keiski become OMSI liaison. Motion passes.
- Site Committee brought forth a proposal to initiate a fundraising campaign. Discussion followed focusing on two topics: On which types of sites and how many sites should the site committee focus? What dollar amount should the target goal be? Other discussion about donor recognition, a presentation at the January general meeting, and payment options. Patton made motion to accept the site committee's proposal to continue site search for three sites and proceed with a fundraising effort to target $110,000. Sameer seconded. Motion passed.

Nominations Committee

- Patton reported that Andy Phelps had expressed interest in the position of secretary and would join the slate to run for that position in the RCA board election. The slate will be presented and voted at the November general meeting as follows: President – Carol Huston; Vice President, Observing – Matt Vartanian; Vice President, Communications – Matt Brewster; Vice President, Public Affairs – Jeff Sponaugle; Secretary – Andy Phelps; and Treasurer – Ed Epp.

Meeting adjourned at 9pm.

ALCON EXPO 2007

Portland, Oregon

Anyone interested in being on the Astronomical League Conference Committee for the conference in Portland in 2007, please contact Dareth Murray - darethlee@comcast.net

Oregon Museum of Science and Industry
Rose City Astronomers
1945 SE Water Avenue
Portland, Oregon 97214-3354

December 2005

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

December 2005

Dec 5	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Dec 12	Mon	RCA General Meeting	OMSI Auditorium	7:30pm
Dec 17	Sat	Telescope Workshop	Swan Island	10am—3pm

January 2006

Jan 9	Mon	RCA Board Meeting	OMSI Classroom1	7pm
Jan 16	Mon	RCA General Meeting	OMSI Auditorium	7:30pm

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 here each month for details, or look us up at the RCA web site (http://www.rca-omsi.org).

RCA CLUB INFORMATION
Message Line: (503) 255-2016
Web Site: http://www.rca-omsi.org