

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 pm.

Meeting Begins: 7:30 pm.

Location: OMSI Auditorium

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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  
April 1, 4:51 PM. PST

New Moon  
April 8, 1:35 PM PDT

First Quarter Moon  
April 16, 7:38 AM. PDT

Full Moon  
April 24, 3:09 AM. PDT



Club Officers				RCA
President	Carol Huston	(503) 629-8809	StarsCarol@comcast.net	<b>MAGAZINE SUBSCRIPTIONS</b> 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: <a href="http://larrygodsey.home.att.net/magazines">larrygodsey.home.att.net/magazines</a> 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. <b>Sky &amp; Telescope Store Discount</b> RCA members who subscribe to <i>Sky &amp; Telescope</i> are entitled to a 10% discount at the <i>Sky &amp; Telescope</i> online store at: <a href="http://skyllandtelescope.com/shopsky">http://skyllandtelescope.com/shopsky</a> To get your discount, enter Rose City Astronomers when prompted for your club name during checkout at the <i>Sky &amp; Telescope</i> online store.
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**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. Ob-

servatory 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)

## Camp Hancock 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 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](mailto: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-oms.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 [mmcra@nwl.com](mailto:mmcra@nwl.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 fluorescent 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 lightning. 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.



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 an 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 5.5-6<sup>th</sup> 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  $\frac{3}{4}$  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 wave 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  $\frac{3}{4}$  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 descend 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.

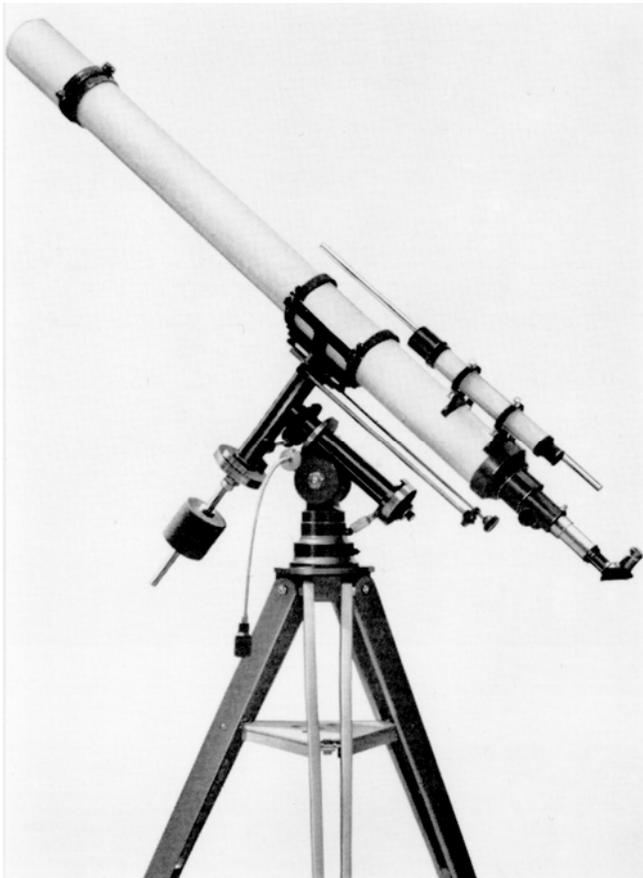
*(Continued on page 7)*

## 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 120° "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.

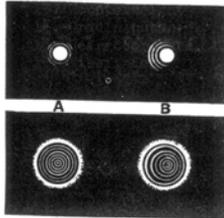
**A SAMPLING OF TELESCOPES (continued from page 5)**

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

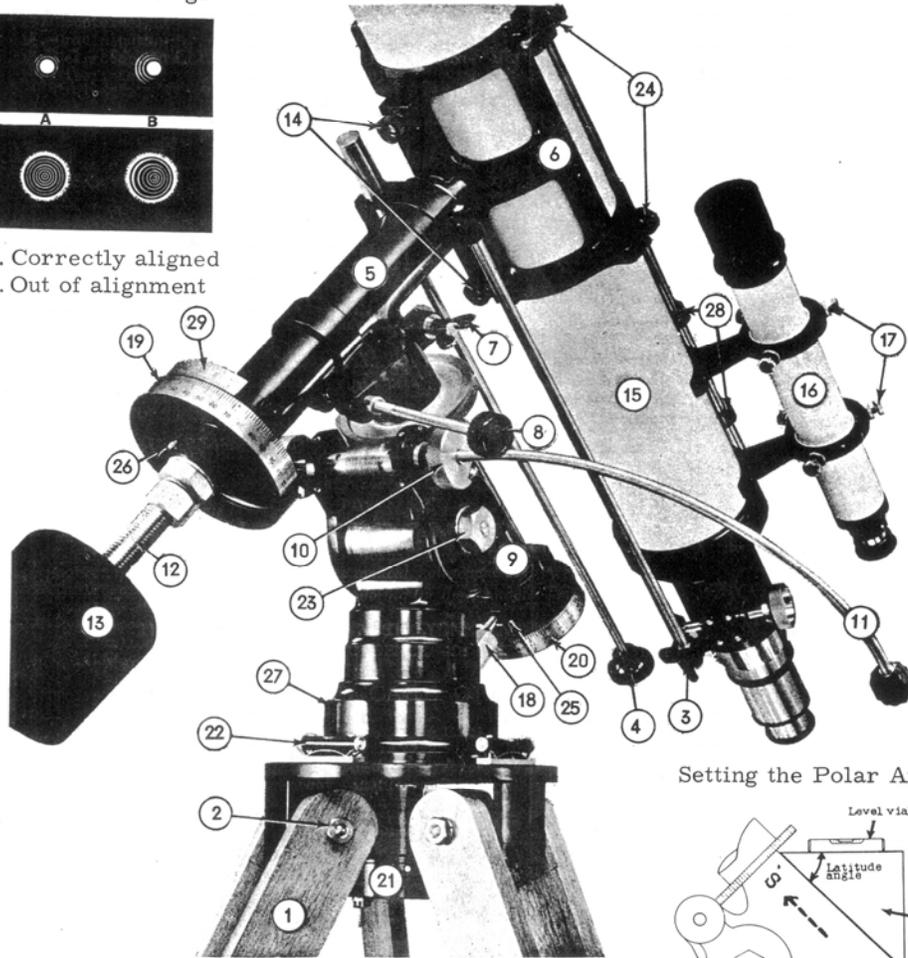
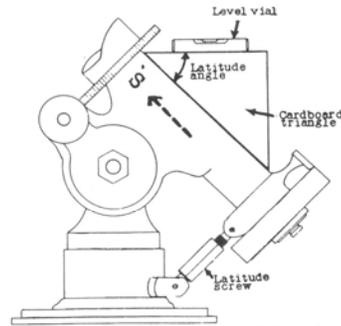


Fig. 1: POLAREX Equatorial Refractor

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

**Setting the Polar Axis**



**Aligning the finder**

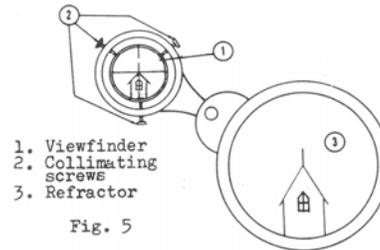


Fig. 5

## 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<sup>th</sup>-12<sup>th</sup> 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<sup>th</sup>-14<sup>th</sup> magnitude stars. 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  $\Sigma$ 1121 (mags. 7.9 & 7.9; sep. 7.4"; p.a. 305°), which is clearly resolved in the 4" refractor ( $\Sigma$ 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 stars (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. Deorbiting 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](mailto:david6366@msn.com) <david6366@msn.com>

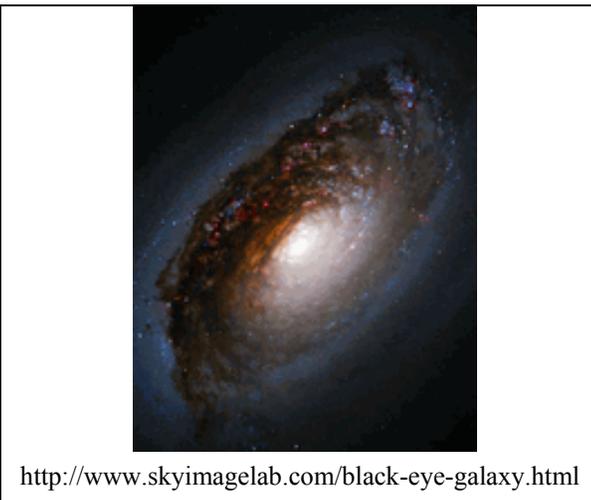
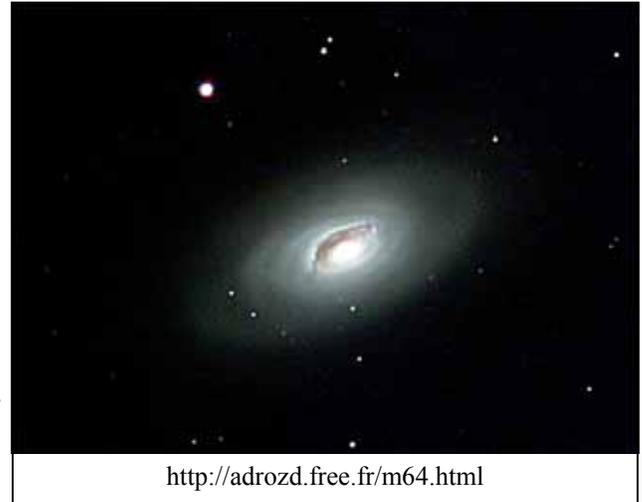


If you like to observe galaxies, April is your time of year. Leo is high in the south, Virgo is just to its east, Coma Berenices, Ursa Major, Corvus are well up – heck, just about all the constellations in the sky right now are loaded with excellent galaxies. But that's not all that's up, so what follows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

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.



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 shines with the total output of 330,000 suns – more than 10 times as much, explaining the extreme difference in their visual appearance.

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](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.

## **OMSI** 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 26<sup>th</sup> workshop. Greg Rohde put together in a binder an extensive set of articles from Spatium ([www.spatium.com](http://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.

## **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](mailto:bobmcgown@comcast.net)**



### **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](mailto:jikeiski@comcast.net))  
503-539-4566

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

## **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](mailto: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.sunrivenaturecenter.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 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!



McDonald Observatory Amphitheatre

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)*



Bob observing on the 82"

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.

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.

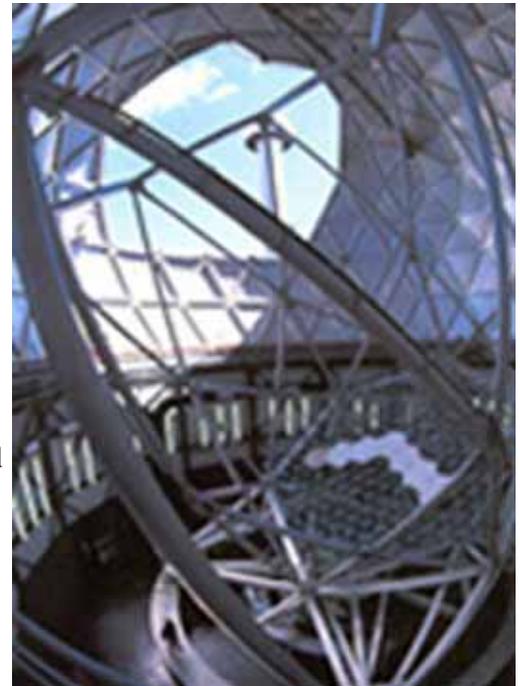
The HET is fixed at 55 degrees and uses a movable secondary mirror that allows it to scan 70% of the sky. The frame of the telescope was built by a bridge maker, the dome was built by a radar dome manufacturer and the segmented mirror is zerodur low expansion glass. This unique design is so successful 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 nebulae
- 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!



Wide angle HET, new technology telescope



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-oms.org>).

### **RCA CLUB INFORMATION**

Message Line: (503) 255-2016

Web Site: <http://www.rca-oms.org>