

The

Rosette Gazette

Volume 17, Issue 9

Newsletter of the Rose City Astronomers

September, 2005



In This Issue:

- 1 .. General Meeting
- 2 .. Board Directory
 - Magazines
 - President's Message
- 3 .. Camp Hancock S.P!
- 4 .. Cosmology SIG
 - RCA Library
 - Telescope Workshop
 - Obs. Site Committee
 - Downtowners
 - Junior RCA
- 5 .. The Observers Corner
- 6 .. OMSI Star Party!
- 7 .. Telescopes Part 10
- 8 .. Unitron Refractor
- 10. Calendar

Let's Talk APERTURE!

Presented By Steve Swayze



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).

All are Welcome!

Monday September 19

Social Gathering: 7 pm.

Meeting Begins: 7:30 pm.

Location: OMSI Auditorium

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

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.

©Copyright 2005 The Rose City Astronomers All Rights Reserved.

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

Moon photos below courtesy David Haworth

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	tlescope@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	kccone@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	jimrpxd@granitic.net
Web Master	Dareth Murray	(503) 957-4499	darethlee@comcast.net
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			
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-oms.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

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

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.



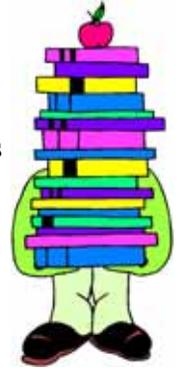
Please Support the Site Fund RAFFLE at the Club Meeting by buying tickets or donating prizes. CASH accepted anytime!

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-oms.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-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@nwlinc.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 to 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.

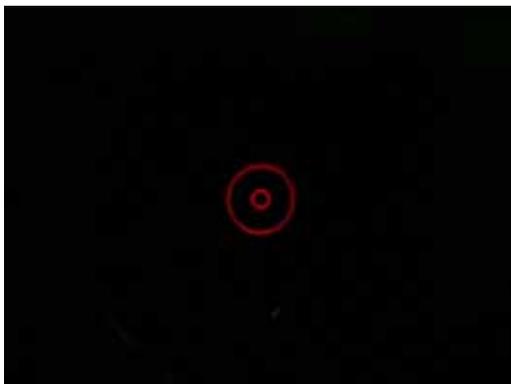
Even with the very wide fov the scope provides with the 31mm Nagler, it's still hard to point without a finder. The Rigel QuikFinder is like a mini-Telrad – it projects two concentric rings on the sky versus the Telrad's three rings – and is a good fit for this size scope (<http://www.rigelsys.com/>).



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 1/4" 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 midpoint 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 1/2° 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 turned-down 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. All rights reserved.

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!

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 1/2-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 Pan-optic 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.

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 Σ 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.



Unitron guide telescopes: 75mm f/16 (left) and 60mm f/11.7 (right).



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.

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-oms.org>).

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