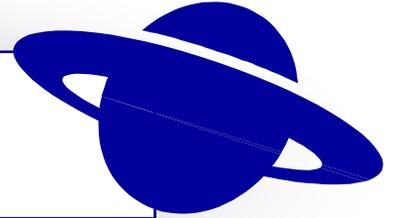


April 2005

The Voyager



East Valley Astronomy Club

Volume 19 Issue 4

From the Desk of the President by Steven Aggas, 2005 EVAC President

Starting on Friday, April 15th, we will begin meeting at the Southeast Regional Library (Gilbert Public Library) on the third Friday of the month. The GPL is located at the Southeast corner of Greenfield and Guadalupe Roads. I appreciate everyone's patience during this transition and hope you all are able to attend the meeting at our new home.

Additionally, it's almost Astronomy Day! And of course we'll have an Astronomy Day extravaganza! We have many activities planned, including an Astronomy Swap Meet, Beginners Workshop and Lab, and a Picnic and BBQ Potluck in the Pavilion. Join us at the Desert Breeze Park in Chandler from 5 PM to 10:30PM. Our Events Coordinators, Gwen Grace and Dave Williams have put together a terri-

fic show! Come on out and join us.

As our speaker for the April General Assembly meeting, we will have Dr. Dr. Todd Bostwick. Dr. Bostwick is the City of Phoenix archaeologist who will speak about Hohokam astronomy. I'm particularly interested in hearing this talk, with all the Indian Ruins throughout Arizona and the Southwest. Join us at the Library on the 15th for a

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The Backyard Astronomer Celestial Delights for Spring by Bill Dellenges

Spring is in the night air. Let's take a look at a few of its offerings. Around mid-April at 9 pm, with the exception of the Big Dipper hanging over Polaris, you'll see this season's only prominent constellation on the meridian – Leo the Lion.

There is a reason for this dearth of stars in spring and fall. At these times we are looking in the direction of our Galaxy's north and south galactic poles, respectively. Since we are then only looking through the top or bottom of the galactic plane (a

few thousand light years thick) we see fewer stars than in summer and winter when we're looking through the full length of the plane of the Milky Way.

Leo is not a terribly bright constellation, but its distinctive shape makes it one of the few star groups that resembles what it's suppose to be. Bright first magnitude star Regulus anchors the western half of Leo, which looks like a backward question mark or sickle. This is the big cat's chest and mane. The eastern

half of the lion is simply a right triangle of stars representing his hind quarters. One of the sky's finest double stars is Gamma Leonis, Algieba. This white pair is the second brightest star in the "sickle" with magnitudes of 2.4 and 4.6 respectively, separated by 4.6" (arcseconds). A Televue Ranger (2.7") can split it at 68x but it looks nicer in a Televue 85 (3.3") at 100x. Don't take this double for granted. Double stars with unequal magnitudes are

(Continued on page 2)

April Highlights:

- *Public Star Party 4/8 in Gilbert*
- *Deep Sky Star Party 4/9 at Vekol Road*
- *Friends of the Arboretum Star Party 4/9 at Boyce Thompson*
- *Monthly Meeting 4/15 at Southeast Regional Library*
- *Astronomy Day 4/16 at Desert Breeze Park in Chandler*
- *Local Star Party 4/30 at Boyce Thompson*

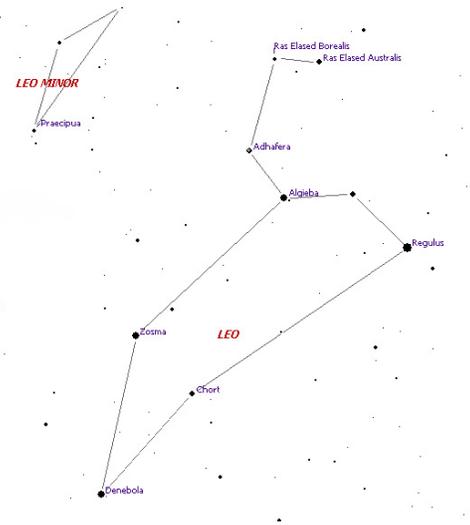
The Backyard Astronomer

(Continued from page 1)

more difficult to split than pairs of equal magnitudes due to glare from the primary star.

A galaxy that gets “no respect” is NGC 2903, just off Epsilon Leonis, the last star in the “mane”. Move west to Lambda Leonis and drop straight down about 1 ½ degrees to sweep it up (GoTo users may just push their buttons). The only brighter galaxy in Leo is M66. No doubt NGC 2903 would be more famous if it had a Messier designation. This obliquely seen spiral galaxy is big and bright; pay it a visit. Coincidentally, this fine galaxy is this month’s featured Deep Sky Object of the Month (see page 14).

Take a careful look just beyond the front and back of Leo. There is a nebulous blob of light in each of those large voids of space.



The glow west of the lion is the large sparse open star cluster M44, the Beehive Cluster in Cancer, about 520 light years away. Cancer is a small very faint constellation. Though it offers many fine double stars and one other cluster (M67), M44 is Cancer’s main claim to fame. It’s a wonderful binocular object of 75 stars scattered over a field of several degrees. An 8x50 finder with a 5 degree field will just fit them all in, nicely framed by three brighter stars 120 degrees

apart (Gamma, Eta, and Delta Cancri). My Televue Ranger at 19x and 2.8 degree field yields a fine view of the Beehive.

Ten degrees north of M44 is Iota Cancri, a stunning Albireo-like yellow and blue double star with a generous separation of 30.5”. Even the Ranger splits it at 19x.

The glow east of Leo is Mel 111, an immense sparse open star cluster 288 light years away in Coma Berenices. Only the Ursa Major and Hyades star clusters are closer. Long ago the Greeks considered this dim star group to be the tuft of hair at the end of the Lion’s tail! Binoculars with an 8 degree field are required to gobble up this monster. It’s a glorious sight and often over looked. The Milky Way’s north pole is just east of Mel 111 near the star 31 Coma Berenices. Within Mel 111, left of center, is a wide easy double star, 17 Coma Berenices, magnitude 5.3 and 6.6 with a separation of 145.4”. Your finder will split it. Slide east from here along this same declination line about 2 degrees and you’ll sweep up galaxy NGC 4565, as you run over fainter galaxy NGC 4494 en route.

NGC 4565 is the noted edge-on galaxy with the prominent dust lane, akin to NGC 891 in Andromeda.

Let us sink down from Leo into the nothingness of spring’s southern skies. If you have the eyes of a lynx, you may be able to make out Hydra, the Water Snake zigzagging its way from below Cancer to under Virgo. Indeed, this is the biggest of the 88 constellations occupying 1303 square degrees or 3.158% of the sky. About 30 degrees south of Regulus we intercept Hydra’s body at Mu Hydrae where we begin our hunt for a fine, though often ignored, planetary nebula NGC 3242, the “Ghost of Jupiter” (Whooooo!!!!). About the same size and brightness of M57, the Ring Nebula, NGC 3242 takes power nicely and can be enlarged enough to resemble its namesake. I could not

see the 11.4 magnitude central star in my C14 at 98, 230, or 326 powers on a recent night. This object is easy to star hop to. Just over one degree south of Mu are two sets of 7th magnitude stars. NGC 3242 is about ½ degree below and between them. I have seen NGC 3242 (mag 8.9) with large binoculars and suspect 8x50’s might pull it in at a dark sky site.

For our last stop, let’s scoot east over to Bootes, The Herdsman. You could spend all night observing the plethora of double stars in this constellation. Possibly the most noted of the bunch is Izar or Epsilon Bootis, the second brightest star in the constellation. F. G. Struve, of double star fame, called it Pulcherrima, “most beautiful.” This guy can be tough to split! Not only is it a close double at 2.9”, but the components have unequal magnitudes of 2.6 and 4.7. One night my 5” APO barely split it at 116x. At 148x it was a bit more convincing but still difficult. Izar is another Albireo-like double with yellow and blue partners.

This ends our spring tour. Should you desire more target suggestions, try:

Galaxies: M66/65 in Leo. M81/82 in Ursa Major. M51 in Canes Venatici. M104 in Virgo. M64 in Coma Berenices.

Globular Star Clusters: M3 in Canes Venatici. M5 in Serpens Caput. M13 in Hercules.

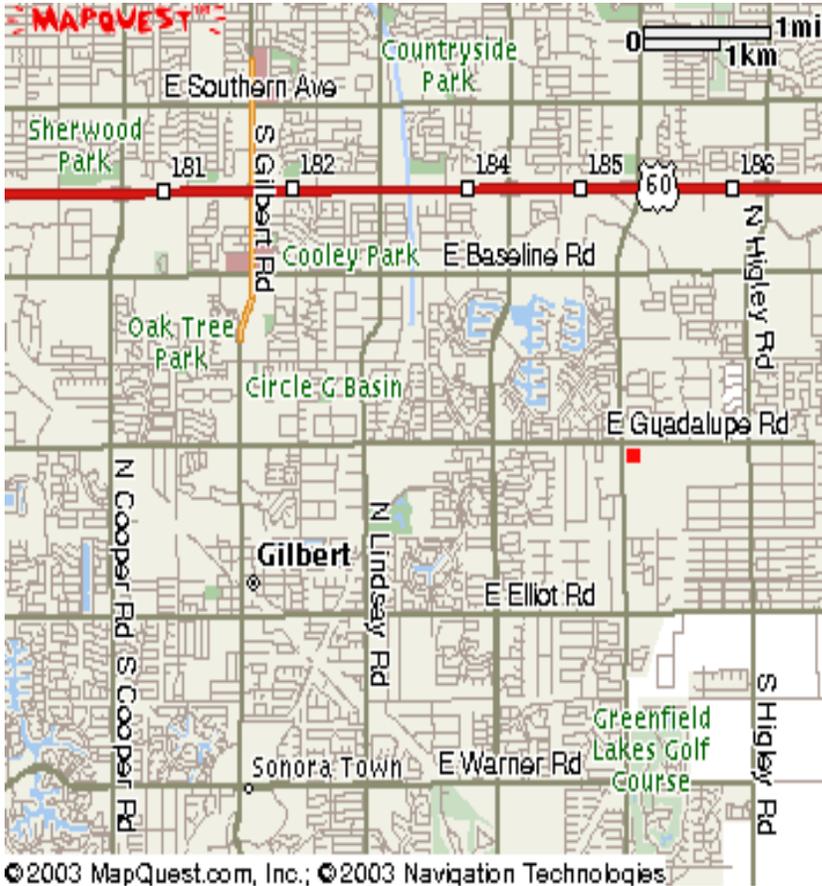
Open Star Clusters: M67 in Cancer.

Planetary Nebulae: NGC 6543 in Draco.

Double Stars: Mizar, Xi, Nu, and 65, in Ursa Major. 90 Leonis in Leo. Cor Caroli in Canes Venatici. Delta Corvi in Corvus. Polaris in Ursa Minor. 57 and Zeta Cancri in Cancer.

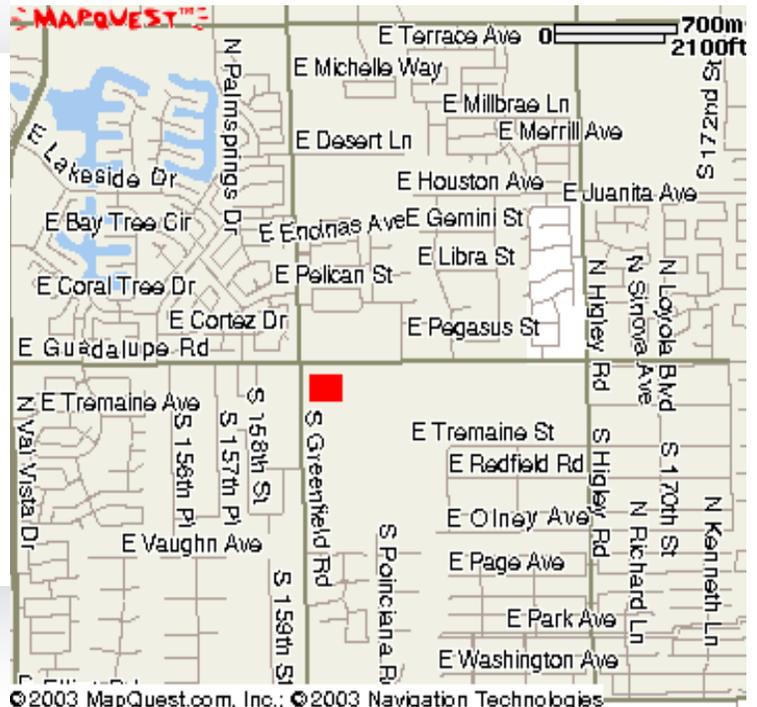
That should keep you busy! Good luck!

April marks the debut meeting at our new home: the Southeast Regional Library in Gilbert. Coincidental with the move to a new site is the move to a new night. We will now meet on the **third Friday evening** of each month , beginning at 7:30 PM. We will continue to meet for dinner before the meeting.



<u>2005 Meeting Dates</u>
<i>April 15</i>
<i>May 20</i>
<i>June 14</i>
<i>July 15</i>
<i>August 19</i>
<i>September 16</i>
<i>October 21</i>
<i>November 18</i>
<i>December 16</i>

The Southeast Regional Library is situated on the southeast corner of Greenfield and Guadalupe Roads. Access to the facility is from either street.



Southeast Regional Library 775 N. Greenfield Road, Gilbert, Az. 85234

Refractor Experiences

by Silvio Jaconelli



TMB 115 LW ready for action

I guess that this article is a little bit of an oxymoron – it is about refractor aperture fever!

I had recently acquired a TV85 refractor which I had intended to use for quick set-up viewing. This was mounted on a Giro Deluxe/Bogen 3068 and weighed in total around 25 pounds – a very portable arrangement. As I read through the Cloudynights refractor forum, I felt that I could increase my viewing satisfaction by moving beyond 85mm of aperture. With the TV85, images would tend to excessively dim down at around 200x – and unacceptably so with a binoviewer attached; and it was not capable of splitting double stars below 1.5 arc seconds. I guesstimated that the TV 85 on an average night was capable of detecting stars no dimmer than around magnitude 10 from my light polluted back yard on a night of average seeing. Hmm... could I do better with larger aperture?

I quickly dismissed the idea of a mirror based telescope – I (most illogically, I know!) have a strong bias in favor of refractors. And I just drooled over observing reports from users of the new SV 130 APO's. However, I already had a 152 mm Takahashi, so why should I consider something as close as a 130 mm APO; and besides,

I'd have to buy a new mount for it. I applied the same logic (in reverse this time) to a 100 mm APO – this was just too close to the TV 85's aperture. And I'd either have to mothball the TV 85 or go through the hassle of trying to sell it. Well, I figured, I may as well content myself with the TV 85.

Then a funny thing happened – one day as I was daydreaming my way through the refractor classifieds in Astromart, I saw a TMB 115 LW for sale. This is a triplet APO and is designed by Thomas Back, who has a reputation for building some of the sturdiest telescopes available.

This one had a focal ratio of $f/7$ and was around 20 inches long with the dew shield fully retracted. On a whim I sent an email to the seller asking him if he would accept the TV 85 in partial trade. Twenty-four hours and several emails later both our telescopes were with UPS headed in different directions! I must add at this point that I find Astromart to be wonderful – all the people that I have dealt with have been very honest and a delight to deal with, and this seller was no exception. The entire matter from first email to first light took less than a week.

My first concern was whether the Giro/Bogen 3068 combination would handle the extra weight, which was now close to 35 pounds. I found the contrary to be true – the Giro actually seemed to perform better with the extra weight, and the Bogen 3068 was not troubled with this heavier load.

Anxious to try out the famed TMB optics, I tried an out-of-focus star test after about 15 minutes of cool down. Yikes – the images were mush. What was going on? Had I bought a lemon? I waited a further 15 minutes, but the star test was still horrible. I de-

ecided to look at the Moon which was about 20 degrees above the horizon – still more mush. Thoughts of horrible things like spherical aberrations swirled in my head. It was not until over one full hour of cool down that things began to look better. And thus I discovered the first downside of the TMB – the triplet objective takes a LONG time to cool down. The TV 85 was usable within 15 minutes, and even the TAK 152 was usable after 45 minutes. But this triplet took much longer.

The Moon did look better at this point but it was still too low in the sky to yield any good images. So I next tried Saturn, and I was very pleased at what I saw. The disc and rings were very sharp, and I clearly saw Titan (obviously) and three additional moons that were just microscopic points of light – not even the TAK 152 showed the moons as pin-



Focuser draw tube fully extended

points this tight; and of course the TV 85 had an insurmountable aperture handicap – I had to strain to see the moons but they were never as obvious as in the TMB 115. The Enke gap was not visible – I have yet to see this in any scope.

The 'E' star in the Trapezium was visible. I never got above 4 stars in the TV 85 and the TAK 152 would often show 6 stars. This is exactly what would be expected from the re-

(Continued on page 10)

April Guest Speaker: Dr. Todd Bostwick



This month we are pleased to welcome Dr. Todd Bostwick, the Phoenix City Archaeologist and Adjunct Professor in the History Department at Arizona State University and at Northern Arizona University. Todd Bostwick has been conducting archaeological research in the Southwest for more than 25 years. He has a Masters degree in Anthropology and a Ph.D. in History from Arizona State University. Dr. Bostwick has been the Phoenix City Archaeologist for 15 years, with his office located at the Pueblo Grande Museum National Historic Landmark. He has received awards from the National Park Service, the Arizona Governor's Office, and the City Manager's Office. He has published various articles and books on Southwestern archaeology and history, including *Landscape of the Spirits: Rock Art at South Mountain Park*, published by the University of Arizona Press.

Pueblo Grande Museum

Pueblo Grande Museum will collect, preserve, interpret, and exhibit materials from the site of Pueblo Grande as well as archaeological and ethnographic material from the Greater Southwest. The Museum is dedicated to enhancing the knowledge of prehistory, history, and ethnology of Native Americans and inhabitants of the Southwest, and promoting a greater understanding of other cultures past and present.

Admission

- Adults (18-54): \$2.00
- Seniors (55 & over): \$1.50
- Children (6-17): \$1.00
- Children (under 6): Free
- Museum members: Free
- Free admission on Sundays

Hours of Operation

- Monday - Saturday: 9:00 a.m. - 4:45 p.m.
- Sunday: 1:00 - 4:45 p.m.



EVAC Meeting Minutes of Wednesday, March 09, 2005

Interim Meeting location: Three-Five Systems in Tempe.

President Steve Aggas opened the meeting at 7:30 p.m., followed by the introduction of Officers and Board members.

Treasurer Wayne Thomas presented EVAC's current financial report.

Event Coordinator Dave Williams spoke of upcoming events.

AJ Crayon spoke about the 2005 Messier Marathon scheduled for March 12-13 at Farnsworth Ranch near Arizona City.

Randy Peterson spoke about an upcoming minor eclipse.

Recognition

Bill Dellinges – Completion of the EVAC Double Star observing program.

Joe Orman - Picture published in Night Sky magazine (sister publication of S&T) April/May issue.

Rick Scott – Photo in the book "Origins - Fourteen Billions Years of Cosmic Evolution" by Neil De Grasse Tyson and Donald Goldsmith. This book is the companion to the four hour NOVA television series by the same name that was aired late last year.

Dr. Richard Jacobs – Photo of M1 in March issue of Sky and Telescope.

Member Presentations

Win Pendleton – Update on the Gilbert Rotary Observatory.

Guest Presentation

Dr. Jon Morse of ASU spoke about NASA's Science Mission Directorate, including three potential missions for which he is the PI. He also announced a new academic path at ASU in the School of Earth and Space Exploration, opening in the fall of 2006.

Classified Advertisements

Two Tele Vue Radian Eyepieces

Focal lengths of 3 mm and 8 mm. Asking \$150.00 each. Like new condition in original packages.

An alt-azimuth head from a Tele Vue Gibraltar mount in good condition, just needs legs or permanent pier. Asking \$100.00 OBO

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Includes Autostar controller, deluxe tripod and electric focuser. Three years old. Like new. Cost over \$1300. Will sell for \$675 cash or make offer

Terry Habig (480) 985-3170 daytime or evenings

Meade Pictor 416XT CCD

All components, filters, manuals, adaptors, autoguider and CCD camera are still in their original factory sealed condition and plastic wrap. Why? Well, the Pictor and it's software are intended for use with a Windows computer and I never got around to buying a Windows laptop -- sounds silly -- but that's the fact. The Pictor 416XT uses the Kodak KAF-0400 CCD chip with the extended blue response. As a CCD camera, it's considered among the best available under \$5000! The autoguider and camera will connect directly to the control panel jacks of Meade LX50, LX90 (APM) and LX200 telescopes (and probably others with similar electronic relay autoguider ports). See a current ad for this unit at: http://telescopes.net/ccd_cameras.html

The Pictor 416XT normally sells for about \$2000 (I paid \$2035 with tax), but I'll sell it for \$1299 (brand new!!).

John Matthews (602) 952-9808
john-cathy@cox.net

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Many extras! Call or e-mail me for a list. I have \$5200 invested in this telescope package, but will sell for \$2000

Dave Rainey 602-980-0582

drainey7@cox.net

Only non-commercial advertisements for astronomical equipment will be accepted from current EVAC members. Ads will be published as space permits and may be edited. Ads should consist of a brief text description and must include a current member name and phone number. You may include your email address if you wish. Ads will be run until canceled or until they have appeared in three issues of the newsletter (whichever occurs first). Ads should be emailed to: news@eastvalleyastronomy.org

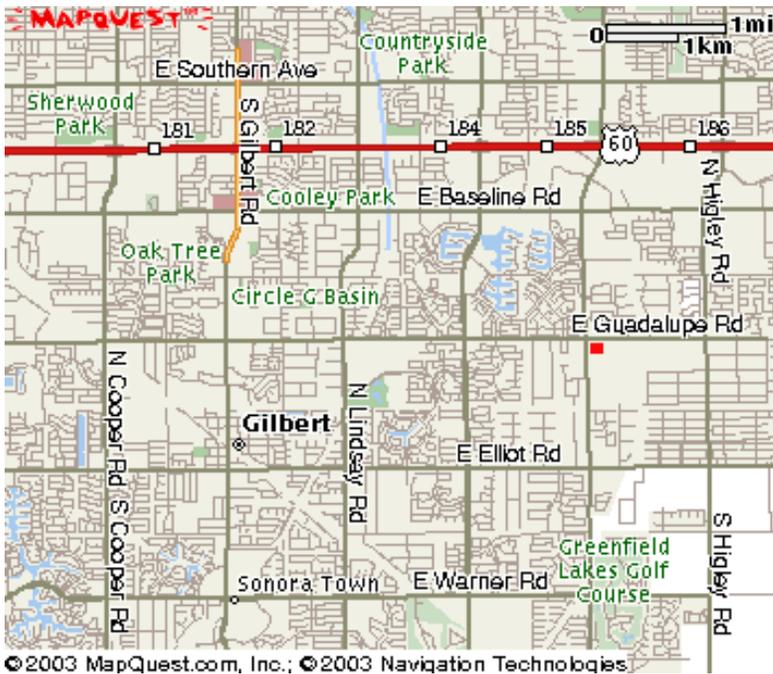
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EVAC is Moving Forward

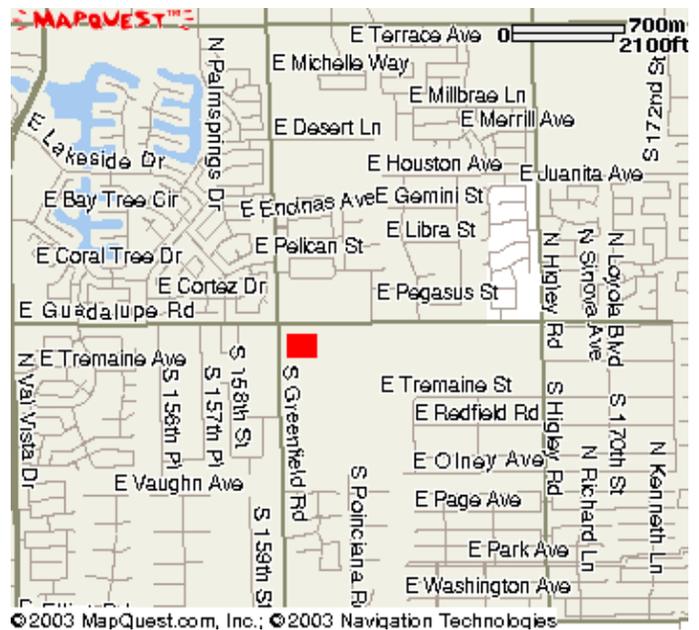


Relocating to this site for our meetings is part of an overall strategy to concentrate our presence at this location. The club hosts a monthly public star party at the Riparian Institute, located just east of the library. This location will also be the site of the Gilbert Rotary Observatory, on which construction is set to begin. What better place for an astronomy club to meet than adjacent to an observatory? Especially since EVAC will be the source of the staff operating this facility.

Southeast Regional Library
775 N. Greenfield Road
Gilbert, AZ 85234

The negotiations are complete and the club has located a new home in the *East Valley*!

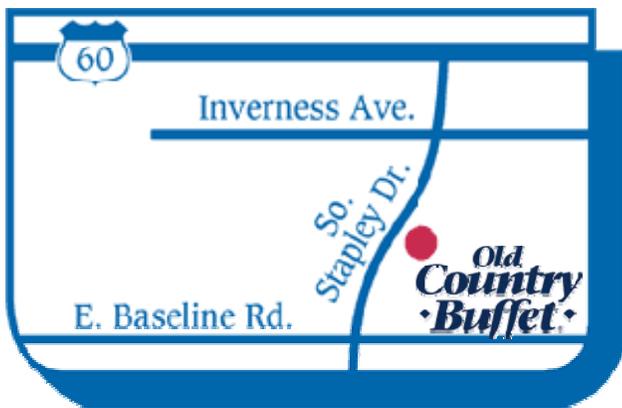
Beginning with the April general meeting -- **Friday, April 15th** -- we will begin holding our monthly general meetings on the third Friday of the month at the Southeast Regional Library in Gilbert. The library is located at 775 N. Greenfield Rd., on the southeast corner of Greenfield and Guadalupe Roads. Meetings will begin at the usual time of 7:30 PM. Many thanks to President Steven Aggas for his hard work in securing a first-class facility for our meetings.



We will continue to meet for dinner before the meeting, at 5:30 PM. The change in meeting location has necessitated a change in restaurant. The new dining establishment is **Old Country Buffet**, located at 1855 S. Stapley Drive in Mesa. The restaurant is in the plaza on the northeast corner of Stapley and Baseline Roads, (near the Walmart Supercenter) just south of US 60.

Since Old Country Buffet and Hometown Buffet are owned by the same company, we can reasonably expect there to be a similar bill of fare.

Old Country Buffet 1855 S. Stapley Drive in Mesa



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

Schedule of Events

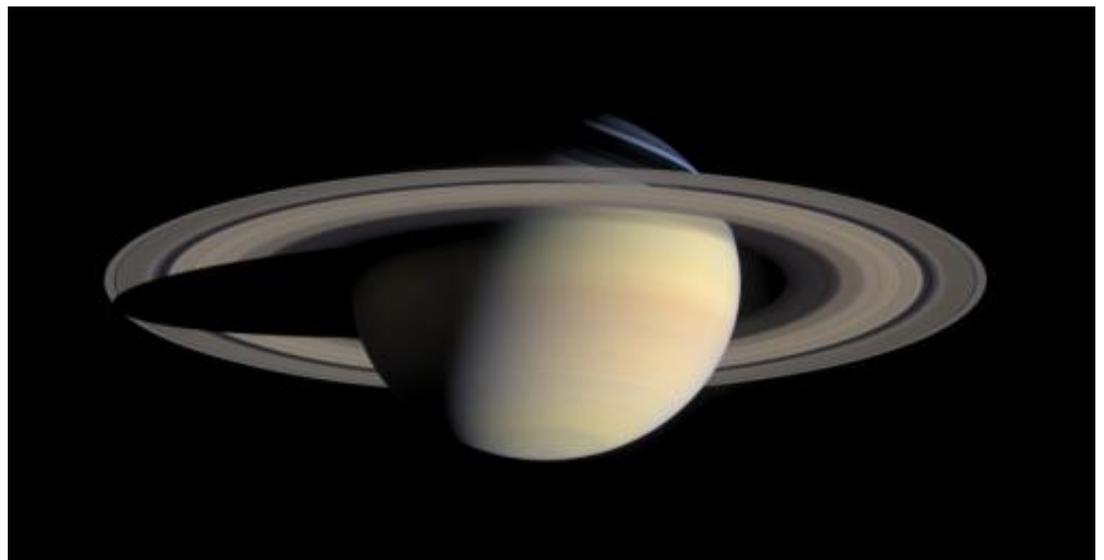
- April 8 - Public Star Party at the Riparian Institute in Gilbert
- April 9 - Deep Sky Star Party at Vekol Road
- April 9 - Friends of the Arboretum Star Party at Boyce Thompson Arboretum
- April 14 - Mesa Schools Outreach Event
- April 15 - Monthly Meeting at Southeast Regional Library in Gilbert
- April 16 - Astronomy Day at Desert Breeze Park in Chandler
- April 21 - Mesa Schools Outreach Event
- April 21 - Sanborn Elementary School Outreach Event (Chandler)
- April 28 - Mesa Schools Outreach Event
- April 30 - Local Star Party at Boyce Thompson Arboretum

While cruising around Saturn in early October 2004, Cassini captured a series of images that have been composed into the largest, most detailed, global natural color view of Saturn and its rings ever made.

This grand mosaic consists of 126 images acquired in a tile-like fashion, covering one end of Saturn's rings to the other and the entire planet in between. The images were taken over the course of two hours on Oct. 6, 2004, while Cassini was approximately 6.3 million kilometers (3.9 million miles) from Saturn. Since the view seen by Cassini during this time changed very little, no re-projection or alteration of any of the images was necessary.

The smallest features seen here are 38 kilometers (24 miles) across. Many of Saturn's splendid features noted previously in single frames taken by Cassini are visible in this one detailed, all-encompassing view: subtle color variations across the rings, the thread-like F ring, ring shadows cast against the blue northern hemisphere, the planet's shadow making its way across the rings to the left, and blue-grey storms in Saturn's southern hemisphere to the right.

Image courtesy of NASA/JPL/Space Science Institute



East Valley Astronomy Club -- Membership Form

Please complete this form and return it to the club Treasurer at the next meeting or mail it to EVAC, PO Box 2202, Mesa, Az, 85214-2202. Please include a check or money order made payable to EVAC for the appropriate amount.

IMPORTANT: All memberships expire on December 31 of each year.

Select one of the following:

- New Member Renewal Change of Address

New Member Dues (select according to the month you are joining the club):

- \$20.00** January through March **\$15.00** April through June
 \$10.00 July through September **\$25.00** October through December
Includes dues for the following year

Renewal (current members only):

- \$20.00** January - December

Magazine Subscriptions (include renewal notices):

- \$29.00** Astronomy **\$33.00** Sky & Telescope

Name Badges:

- \$10.00** Each (including postage) Quantity: _____

Name to imprint: _____

Total amount enclosed:

Please make check or money order payable to EVAC

- Payment was remitted separately using PayPal Payment was remitted separately using my financial institution's online bill payment feature

Name:

Phone:

Address:

Email:

City, State, Zip:

Publish email address on website
URL:

How would you like to receive your monthly newsletter? (choose one option):

- Electronic delivery (PDF) US Mail

Areas of Interest (check all that apply):

- General Observing Cosmology
 Lunar Observing Telescope Making
 Planetary Observing Astrophotography
 Deep Sky Observing Other

Please describe your astronomy equipment:

Would you be interested in attending a beginner's workshop? Yes No

How did you discover East Valley Astronomy Club?

All financial matters can be addressed with the Treasurer (Wayne Thomas) at: treasurer@eastvalleyastronomy.org

Refractor Experiences by *Silvio Jaconelli*

(Continued from page 4)

spective apertures of all three of these scopes.

Rigel's companion was obvious in the TMB115, and even more so in the TAK 152; but the view was a lot brighter than what I was used to in the TV 85.

For a real resolution challenge, I tried Zeta Cancri (8 Hr12', +17 degrees), a beautiful triple where the primary star is further divided into two stars with roughly 1 arc second separation. As expected, the result was midway between the TV 85 (I was never able to resolve the one arc second gap), and the TAK 152 (full separation observed). With the TMB I was getting a 'figure 8' – close, but no cigar! Let me digress at this point to talk a little about Zeta Cancri.

This is a fast moving multiple star where the B star is revolving around the A star very quickly (I think that it has a 60 year rotation period). Two years ago the B star was very slightly south of a line drawn between the A & C stars, while last year all 3 stars were in a perfect straight line; the TMB 115 this year showed that the B star had now moved NORTH of a line formed by joining the A & C stars!

Burnham 324 in Canis Major, a very interesting triple (6Hr50', -24 deg) and in my opinion one of the finest triples in the sky. It has three components all around 7th & 8th magnitudes with separations of 1.8" and 30". The TMB 115 easily resolved this triple despite the low elevation in the sky. What makes this triple so neat is the presence of a tight double in the same medium power eyepiece field of view where the components point right at the triple. Beautiful! Then I tried some old favorites – the TMB 115 nailed most of these with no effort – Eta Orionis (5Hr 24', -2 degrees, 1.7" separation), Zeta Orionis (5Hr 41', -2 degrees, 2.5" separa-

tion), and Beta Monocerotis triple (6Hr 29', -7 degrees, closest separation is 2.9"). Sigma Orionis quadruple (5Hr 39' -2 degrees) deserves special mention - the TV 85 never quite managed to show the 4th star at 9th magnitude (it was too close to the bright primary and my back yard is too light polluted) but it was a snap in the TMB 115 and very obvious in the TAK 152.

One of my last remaining challenges still eluded me – splitting Sirius. If anyone out there has split Sirius in the past 5 years, please let me know how you did it!

Let me finish by stating my thoughts on all 3 telescopes Let me start with the TV 85mm.

It is ultra-portable but the light grasp and resolving power leaves me wishing for more of both.

The TMB 115 LW is very solidly built, which accounts for the OTA weight of around 15 pounds; however, as long as I can haul it 15 feet from my living room to my back yard fully set up on the mount/tripod then the weight does not concern me. It also collapses down to less than 20 inches in length, a nice feature for those who prefer to travel light. I keep it fully mounted in my living room, ready to go at a moment's notice with a set up time of around 20 seconds. It has a dual speed Feather-touch focuser that is oh-so-nice. The dew shield is lined with flocking paper and collapses down over the OTA. Also, it has a telescoping extension tube built into the focuser draw tube that has 100mm of travel; if you add in the draw tube travel of around 4 inches and you end up with total focus travel of around 8 inches. This makes it an ideal scope for binoviewers, an accessory that I use extensively. Finally, I find that the baffling in the TMB 115 is superior to the other two scopes – the back-

ground sky looks much darker. The star images are tighter pin points than in the other two telescopes. Downsides? Well, I've already covered the long cool down times. Also, the damping time at high power (above 200x) is longer than I like - around 6 seconds. This bugs me until I remind myself that I am cruising at 200x on 115 mm of aperture on an ultra-portable alt-az lightweight mount. Like the saying goes, you can't have everything...

The TAK 152 is a big telescope, with price tag to match! It requires a heavy duty mount which makes it nowhere near as portable as the other two telescopes. But once mounted on my EM200, the telescope is rock solid and it tracks perfectly. The light grasp is what I would consider is minimum for an all round scope – the Eskimo actually looks like a nebula from my backyard, it routinely shows all 6 stars of the Trapezium, even 3 months past opposition it shows Cassini all the way around Saturn, it shows the crepe ring clearly, and it splits double stars with below one arc second resolution. The clarity and sharpness of the images at 300x are close to what I get at 200x from the TMB 115, and to what I get at 125x in the TV 85.

In mono-mode on all telescopes (i.e. when not binoviewing) I use only 2 eyepieces – a 32mm Plossl that gives me a very wide FOV (my 'finder' eyepiece) and a TV 3-6mm zoom that yields acceptable magnifications for the Moon, planets & double stars. It is so much fun to be able to dial the magnification up and down with the flick of the hand without the trial & error fumbling with different eyepieces that I was used to.

Utterly Alien by Dr. Tony Phillips

There's a planet in our solar system so cold that in winter its nitrogen atmosphere freezes and falls to the ground. The empty sky becomes perfectly clear, jet-black even at noon-time. You can see thousands of stars. Not one twinkles.

The brightest star in the sky is the Sun, so distant and tiny you could eclipse it with the head of a pin. There's a moon, too, so big you couldn't blot it out with your entire hand. Together, moonlight and sunshine cast a twilight glow across the icy landscape revealing . . . what? twisted spires, craggy mountains, frozen volcanoes?

No one knows, because no one has ever been to Pluto.

"Pluto is an alien world," says Alan Stern of the Southwest Research Institute in Colorado. "It's the only planet never visited or photographed by NASA space probes."

That's about to change. A robot-ship called New Horizons is scheduled to blast off for Pluto in January 2006. It's a long journey: More than 6 billion kilometers (about 3.7 billion miles). New Horizons won't arrive until 2015.

"I hope we get there before the atmosphere collapses," says Stern, the mission's principal investigator. Winter is coming, and while it's warm enough now for Pluto's air to float, it won't be for long. Imagine seeing a planet's atmosphere collapse. New Horizons might!

"This is a flyby mission," notes Stern. "Slowing the spacecraft down to orbit Pluto would burn more fuel than we can carry." New Horizons will glide past the planet furiously snapping pictures. "Our best images will resolve features the size of a house," Stern says.

The cameras will also target Pluto's moon, Charon. Charon is more than half the size of Pluto, and the two circle one another only 19,200 kilometers (12,000 miles) apart. (For comparison, the Moon is 382,400 kilometers [239,000 miles] from Earth.) No wonder some astronomers call the pair a "double planet."

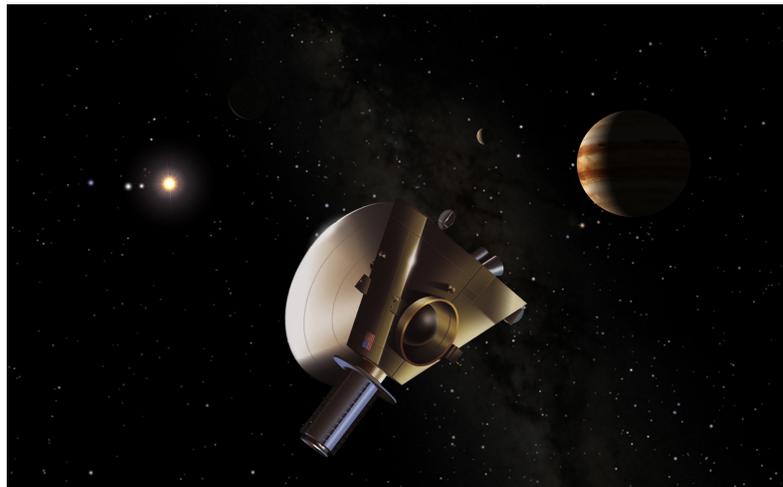
Researchers believe that Pluto and Charon were created billions of years ago by some terrific impact, which split a bigger planet into two smaller ones. This idea is supported by the fact that Pluto and Charon spin on their sides like sibling worlds knocked askew.

Yet there are some curious differences: Pluto is bright; Charon is darker. Pluto is covered with frozen nitrogen; Charon by frozen water. Pluto has an atmosphere; Charon might not. "These are things we plan to investigate," says Stern.

Two worlds. So alike, yet so different. So utterly alien. Stay tuned for New Horizons.

Find out more about the New Horizons mission at pluto.jhuapl.edu/. Kids can learn amazing facts about Pluto at spaceplace.nasa.gov/en/kids/pluto.

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



New Horizons spacecraft will get a gravity assist from Jupiter on its long journey to Pluto-Charon. Credit: Southwest Research Institute (Dan Durda)/Johns Hopkins University Applied Physics Laboratory (Ken Moscati).

If it's Clear...

by *Fulton Wright, Jr.*
Prescott Astronomy Club

April 2005

Shamelessly stolen information from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find info. When gauging distances, remember that the Moon is 1/2 a degree or 30 arc minutes in diameter. All times are Mountain Standard Time unless otherwise noted.

In the early evening, all month, you can have a good look at Saturn, high in the southwest. A small (3 inch) telescope will show the rings. A bigger scope will show more detail.

On Friday, April 1 (no fooling), from 9:55 PM to 12:08 AM you can see Io and its shadow cross Jupiter. With a medium (6 inch) telescope look 35 degrees above the southeast horizon for the planet at the start of this event. Because Jupiter is near opposition, the satellite and the shadow will appear very close together.

On Saturday, April 2, about 5:30 AM (pretty early), you can see the north pole of the Moon at its best. Although the Moon is somewhat low in the sky (25 degrees above the south horizon), libration tips the north toward us. A small (3 inch) telescope should show some interesting things. The night before or after should also be good.

On Wednesday, April 6, from 10:38 PM to 1:16 AM, you can watch Europa cross in front of Jupiter. The satellite's shadow trails along 10 minutes behind.

On Friday, April 8, it is new moon so the whole night will be dark.

On Monday, April 11, about 8:00 PM, you can see the Moon near a star cluster. With binoculars look 25 degrees above the west horizon for the crescent Moon and the Pleiades.

On Friday, April 15, starting about 7:30 PM, you can have a good look at the south pole region of the Moon. With a small (3 inch) telescope look 75 degrees above the southwest hori-

zon for the first quarter Moon. The lower left (south) part of the Moon is tipped toward us by libration. (Note that the Moon is between the star Castor and the planet Saturn. The other star in the area is Pollux.) The day before or after should also be good.

On Sunday, April 17, at 1:04 AM (sorry about that) you can see Io come out of Jupiter's shadow near the left edge of Jupiter. That "out of place star" above Jupiter is Callisto, which is actually passing almost in front of, but slightly north of, the Planet.

On Friday, April 22, starting about 8:00 PM, you can have a good look at the planetary west (celestial east) part of the Moon. With a small (3 inch) telescope, look 25 degrees above the southeast horizon for the almost full Moon. The terminator (along the lower edge) shows the relief of a part of the Moon which is tipped toward us by libration.

On Sunday, April 24, about 2:55 AM (sorry about the time), you can see a penumbral eclipse of the Moon. With your unaided eye look about 30 degrees above the southwest horizon for the full moon (you can't miss it). Notice that the upper part is slightly darker than the lower. The Moon is just skimming by the lower edge of the earth's main shadow so the sunlight to our satellite is only partially blocked. You might be able to detect some darkening for a 2 hour period centered on the time given above.

On Friday, April 29, about 4:30 AM (ugh), you can see the north pole of the Moon at its best. Although the Moon is somewhat low in the sky (25 degrees above the south horizon), libration tips the north pole toward us. The next night should also be good.

EVAC Astronomy Day

Did you know there was an Astronomy Day? Well, it's Saturday, April 16th, and the East Valley Astronomy Club has some interesting plans.

With the assistance of Sky and Telescopes posters, post cards and announcements the word is spreading. April 16 from 5 PM to 10:30 PM at Desert Breeze Park in Chandler many activities are planned. The Park has 2 large covered ramadas with 8-10 picnic tables each, and 2 large BBQ areas. Next to this area is the Orientation field with little lights for putting up scopes.

First is an **Astronomy Swap Meet**. Here is a chance to bring out those excess items you have been hoarding and really want to unload. This is a chance to clean out the garage and offer that extra telescope to someone who would appreciate it. There is a covered area in the Acacia Ramada to lay out the items, big or small, on large picnic tables, or to set up a scope.

Then there will be a **Beginners Workshop and Lab** in the Orientation field for those with new scopes to get some assistance from EVAC members on setting them up. This will start about 6 PM with sunset about 7 PM. If you have joined EVAC lately, this is the chance to get to ask the experts.

During this time the BBQ area will be available for you to cook your hot dogs and hamburgers so bring your picnic lunches and join the fun. The Palo Verde Ramada has seating for 80 people for eating. And for the kids, a **Stomp Rocket** lab and contest!

How to get there? Easy... Desert Breeze Park is off Chandler Blvd and Rural. Easy access from the 101, go west on Chandler Blvd. exit. Or east off the I-10 exit. Easiest to enter off Chandler Blvd. right onto Desert Breeze Drive. Enter parking lot #3 with excess parking on grass next to ball field.

Hope to see you there!

Another Fine Marathon in Arizona

On Saturday, March 12th over 100 amateur astronomers converged on Farnsworth Ranch to participate in the 2005 All-Arizona Messier Marathon, hosted by the Saguaro Astronomy Club. The attendees came from Arizona, California, Colorado, Michigan, Connecticut and even Canada!

A very special THANK YOU goes out to Ray Farnsworth for his continued support of local amateur astronomy by allowing us to use his land for such events. Ray did a fantastic job of grading the last several miles of the road leading into the site, making for a very smooth, albeit dusty, drive.

Also to be commended for their hard work in supporting this event are the duo of AJ Crayon and Jack Jones. Their efforts make it all possible.

The day began as a Chamber of Commerce day in the valley - sunny and warm. Some distant clouds hovered along the southern horizon, thickening by mid afternoon but dissipating after sunset.

Cars, trucks and motor homes trickled onto the observing field all afternoon, joining the dozen or so who remained from a pre-Marathon Friday observing session. By the time of AJ's legendary 'talk' just before the official start of the event, the vehicle count reached 90.

After arrival, most folks spent their time visiting with old friends, making new friends, and setting up their equipment for the night that lay ahead.

For about an hour in late afternoon many folks gathered for the EVAC-hosted Marathon BBQ. This year's event was organized by Event Coordinator Gwen Grace. Unfortunately Gwen wasn't feeling well and could



not attend. Nevertheless, the BBQ was a big success. Kudos to Gwen and this year's chef, Chuck Shields. A table laden with cookies and fresh fruit remained throughout the night, and was visited regularly by those seeking a little late night sweetness.

Assembled on the observing field was exactly what one would expect to see: a varied assortment of telescopes big and small, along with tables holding charts, books and binoculars. Singles, couples and families appeared ready for a great event... and they were not to be disappointed. Clear skies and moderate temperatures allowed for a most pleasurable Messier Marathon.

All things considered, one could probably only find two things to complain about. The first was an early departer driving the length of the observing field with their headlights turned on. Remember, if you don't plan on staying at such events all night, park near the front of the field with your vehicle facing the exit. The other, of course, was that M30 was not visible in the morning twilight.

A great time was had by all.

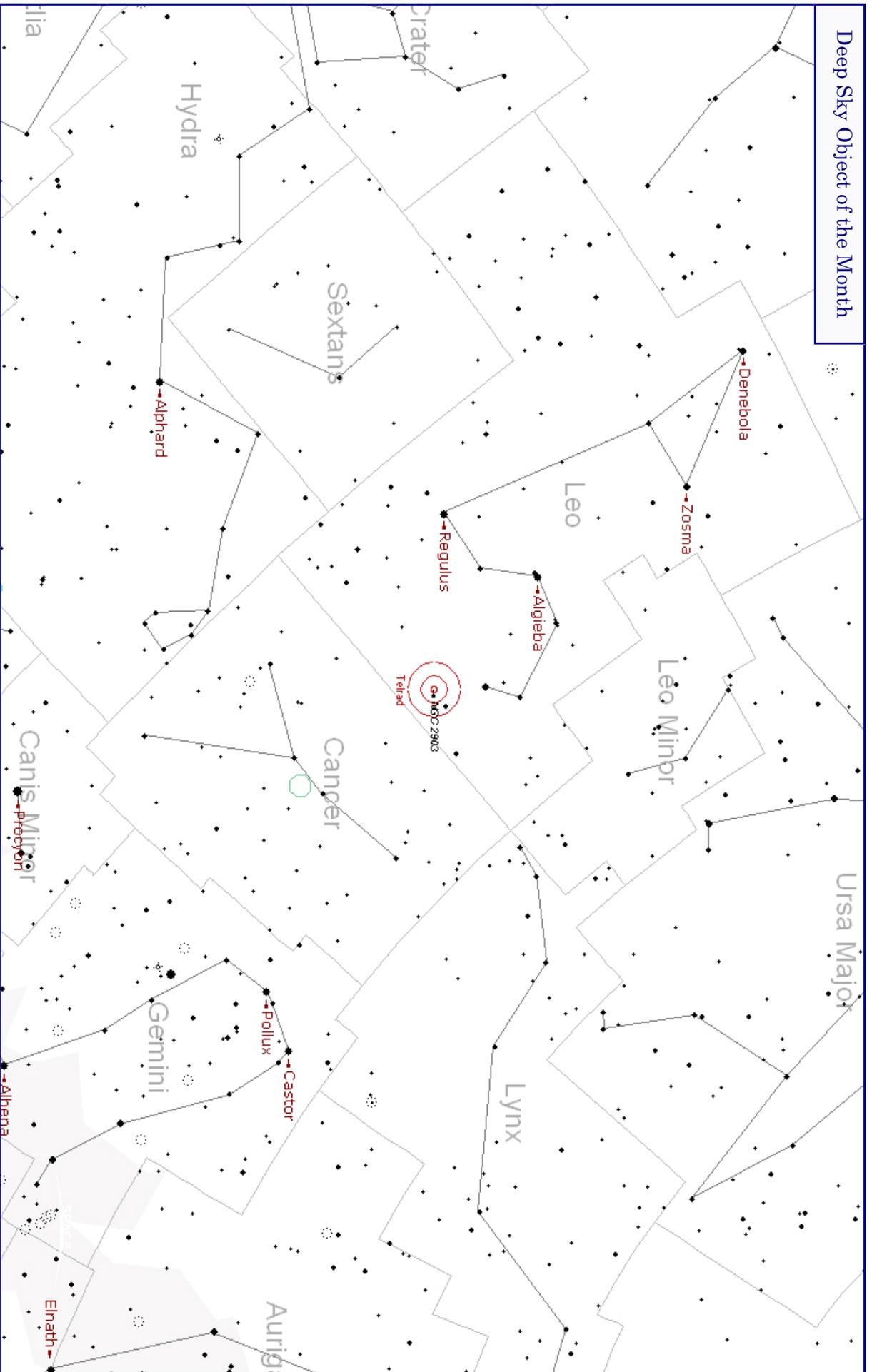
First place: 109 objects observed

Second place: 108 objects observed

Third place: 107 objects observed

Honorable Mention: over 50 objects observed.

- 2005 Messier Marathon Results
- 109 Peter Argenziano
 - 109 Anne Marie Cooper
 - 109 Andrew Cooper
 - 109 Ethan Foxman & Chris Biggs
 - 109 David Hardinger
 - 109 Roger Hutchins
 - 109 Jack Jones
 - 109 Paul Lind
 - 109 Bernie Sanden
 - 109 Ken Sikes
 - 109 Carter Smith
 - 109 Rick Tejera
 - 109 Gerry van Dyk
 - 108 Jack & Carol Farmer
 - 108 Patrick McDonald
 - 108 John Moschinger
 - 108 David J. Trogan
 - 108 Ray Vorbeck
 - 107 Rick Rotramel
 - 106 James & Delia Brix
 - 106 Jonathan Yount
 - 105 Greg & Amanda Kettell
 - 105 Scott & David Kroeppler
 - 103 Chuck Shields
 - 103 Wayne Thomas
 - 102 John Mathews
 - 100 James Squair
 - 94 Joan McGue
 - 92 Jamie Lines
 - 89 Scott & Heather Saari
 - 78 Sierra DeMesa
 - 78 Thomas Watson
 - 74 John Holmquist
 - 76 Lynn Blackburn
 - 69 Michael Grindle
 - 69 Nick <unknown>
 - 67 Roy Chancellor
 - 60 AJ Crayon
 - 59 Susan Barbetti
 - 57 Hazel Lawler



NGC 2903 (UGC 5079, PGC 27077) Spiral galaxy in Leo

Magnitude: 9.6 Size: 12.6' x 5.5' Position Angle: 17° Distance: 30,659,331 ly
RA 09h 32m 9.7s Dec +21° 30' 03"

Light Pollution Law Helps Czechs Reclaim the Stars

by Kate Connolly (central Europe correspondent for the Guardian)

Taking a dim view of the light that shines on their country, astronomers in the Czech Republic have succeeded in pushing through parliament the world's first countrywide law to reduce light pollution. The rapid increase in the amount of glare from street lamps, neon signs and illuminated advertising hoardings since the fall of communism prompted the law, which comes into effect on June 1. The legislation, passed by both houses of parliament, instructs the public to 'take measures to prevent the occurrence of light pollution of the air,' or risk fines of £2,800. Light pollution is defined as 'every form of illumination by artificial light which is dispersed outside the areas it is dedicated to, especially if directed above the level of the horizon.' The law's main advocate, astronomer Jenik Hollan, who teaches at the Copernicus Observatory in the south-eastern university town of Brno, said it was a ground-breaking move to reclaim the heavens by stopping artificial lights 'drowning' the stars. 'The idea of a pristine night sky where you can see the stars has become an alien concept for most, due to the exponential growth in artificial outdoor lighting', he said. 'Astronomers are having to use stronger and stronger equip-

ment to view the Milky Way, and some never get to see small meteors or wispy nebulas any more.' He said that strobe lights and inefficient street lighting were among the main culprits. 'Czech scientists have to go over the border into Austria to find a clean sky,' he said, adding that the arrival of capitalism twelve years ago - and with it the unchecked explosion in sporting venues, shopping centres, motorways and street advertising - had undoubtedly contributed to the pollution. From June, the authorities will be required to shield lamp-post lights and other public illumination to control the spread of light, and use flat rather than curved-belly glass to prevent light shooting upwards and sideways. Teams of astronomers will work with energy conservationists, lighting engineers and the public to limit the amount of 'wasted' light. Advertising billboards will have to be lit from above, with their lights pointing downwards. It is hoped that pilot projects will convince the general public of the efficacy of the law. 'Under our proposals we will not be living in a duller world,' Mr Hollan insisted. 'The use of light will simply be more efficient, and the view

from space would be of a dark world, because the lights would be pointing downwards. It is no accident that Prague has become a world leader with its legislation to protect the stars. The tradition of astronomy extends back to the sixteenth century, when the city was transformed into a scientific and cultural centre by Emperor Rudolf, who invited history's most significant astronomers, such as Johannes Kepler and Tycho Brahe, to study at his court. The country's modern astronomers persuaded the government to introduce the law by arguing that the excessive exposure to night-time lighting causes near-sightedness, cancer, insomnia, damage to the immune system, and a reduction in the production of the hormone melatonin. The Czech Republic is the first country in the world to pass a countrywide light pollution law. The only examples of similar legislation are to be found in the regions of Lombardy in Italy and Catalonia in Spain.

Our guest speaker for the May 20th meeting is Dr. Kevin Healy of the Physics and Astronomy department at ASU. Dr. Healy's topic will be "Low-mass star formation in the H II region environment," or the formation of low-mass (that is, Sun-like) stars in regions of high-mass star formation. This research has implications for the formation of the Sun and Solar System.

Star Party Disclaimer

The East Valley Astronomy Club (EVAC) is not responsible for the property or liability of any star party participant, nor will the club be held liable for their actions or possessions. EVAC is not responsible for any vehicular damage, theft, or mechanical difficulties that may occur while attending a star party. EVAC strongly recommends adherence to the doctrine of 'safety in numbers' when it comes to remote observing sites. In the interest of safety it is recommended that you don't go to remote sites alone and that someone knows where you have gone each time you go out observing.

The Voyager is published monthly by the East Valley Astronomy Club and made available the week preceding the monthly club meeting. An electronic version (Adobe PDF) is available online.

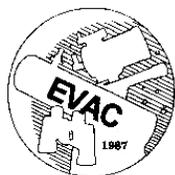
Please send your contributions, tips, suggestions and comments to the Editor (Peter Argenziano) at:

news@eastvalleyastronomy.org

Contributions may be edited.

www.eastvalleyastronomy.org

Keep Looking Up!



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