

ALCON 2012

Celebrate Starlight
CHICAGO, JULY 4-7, 2012

Celebrating 150 Years of Organized Astronomy: 1862-2012



FEATURED SPEAKERS:

- **Mike Simmons**, President, Astronomers Without Borders
- **Dr. Donald Parker**, ALPO, Planetary Astrophotographer
- **Dr. Dave Crawford**, Co-founder IDA (remote presentation)
- **Wally Pacholka**, TWAN, Landscape Astrophotographer
- **Dr. Jason Steffen**, Kepler Mission Scientist
- **Dr. Mark Hammergren**, Adler Asteroid Expert
- **Dr. Philipp Heck**, Field Museum Meteorite Curator
- **Dr. Hasan Padamsee**, Physics Professor/Playwright, Cornell Univ.
- **Vivian Hoette**, Astronomy Educator at Yerkes Observatory
- **Jeff Talman**, Artist, Star Sound Installation, "Nature of the Night Sky"
- **Dr. David Blask**, Expert in circadian disruption/cancer/light pollution
- **David Eicher**, Editor-in-Chief, Astronomy Magazine
- **Dr. George "Bud" Brainard**, Expert in human health effects of light



CALL FOR MATERIAL:

Call for Material for commemorative "Celebrate Starlight" book and poster. Will be released at ALCon2012! Submissions extended until **June 5, 2012**.

Submit songs and/or one- to five-minute videos about starlight preservation.

Celebrate Starlight Book

We invite your astronomy organization to submit one to four pages describing its history. How do you want your association to be remembered? Let your organization's achievements, members & outreach SHINE on these pages!

Celebrate Starlight Poster

This commemorative poster will be a montage of club logos, famous faces, astrophotos and special projects. We invite organizations to send logos and any other pertinent images to have included in this very unusual poster.

What constructed image will the montage represent? Come to ALCon 2012 and find out!



- Morning talks: **Marriott Lincolnshire Resort** on Wed, Thur, Fri; Morning & afternoon talks on Sat; Day trips*
- **Very special early booking room rate at the Marriott \$69+tax** (reg \$169)
- Daytrips: Fermilab, Yerkes, Sailing, Field Museum, Adler Planetarium
- Workshop at Yerkes: Outreach for the sensory impaired
- Saturday Awards Banquet, documentary *Saving Hubble*, Star Party on Resort golf course
- July 4th Fireworks, StarParty
- StarBQue, StarParty, chamber music concert at Ravinia
- AL Urban Observing Challenge
- Official **NCRAL, ALPO, AWB** events
- **MWAIC** Astro-Imaging Conference, Wed, Thu, Fri
- Qualified **Teacher CPDU credits**
- Dark Sky Advocacy presentations and roundtable forum
- Celestial Arts Contest: photos, songs, poetry, 3-min videos, art

*Day trips on Wednesday, Thursday, Friday dependent on required sign-ups

More information and registration:

alcon2012.astroleague.org

Special additions to the program:

- *Creation's Birthday*, the play by Hasan Padamsee about Hubble and the birth of the Big Bang Theory



PARTNERS:



StarShip Sail - July 5

Registered Tall Ship Windy II, a 149' 4-masted schooner. Evening sail to learn celestial navigation and mythology.

Contents

- 4** President's Notes
Report on NEAF 2012; League considering international
- 5** International Dark-Sky Association
IDA's monthly newsletter Night Watch
- 7** 2012 National Young Astronomer Awards
- 9** Deep Sky Objects
The Bridal Veil Nebula
- 10** The changing view of amateur astronomy
Is amateur astronomy getting the interest it once had?
- 12** As far as Abell
George Abell and the galaxy cluster surveys
- 14** 2012 Leslie C. Peltier Award
- 15** Maximize your membership!
A refresher course on League membership benefits
- 16** Observing Awards
- 18** Coming Events
Devote a weekend to a star party near you



Our cover: Contributor **Jim Edlin** took this image at the Texas Star Party on April 18, 2012 at about 3:50 a.m. Jim added that the star party "was great" with clear skies every night. The shot chosen for the cover was taken with a Nikon D800 which has very low noise and a 36 Mp chip. The exposure was taken at 6400 ISO at 30 second and was enhanced and color corrected in Photoshop. Silhouetted against the Milky Way is Jim's 28-inch F-3.6 Dobsonian.

To our contributors: The copy and photo deadline for the September 2012 issue is July 15. Please send your stories and photos to magazine Editor, Andy Oliver (editor@astroleague.org), by then. The Astronomical League invites your comments regarding the magazine. How can we improve it and make it a more valuable source for you, our members? Please respond to Andy Oliver at the email address above.

Reflector

The Astronomical League Magazine

Vol. 64, No. 3 • ISSN: 0034-2963 • June 2012

A FEDERATION OF ASTRONOMICAL SOCIETIES
A NON-PROFIT ORGANIZATION

- To promote the science of astronomy
- By fostering astronomical education,
- By providing incentives for astronomical, observation and research, and
- By assisting communication among amateur astronomical societies.

Astronomical League National Office:
9201 Ward Parkway, Suite 100, Kansas City, MO 64114



THE KITT PEAK EXPERIENCE...
LIKE NO OTHER

KITT PEAK

NATIONAL OBSERVATORY
Tucson, Arizona

Upcoming
Astrophotography
Workshops

- Intro to Astrophotography
October 19-21
- Advanced Astrophotography
November 9-11

Call 520-318-8726 for information
or visit www.noao.edu

Bob's Knobs

Meade 12" Celestron C11

EASY COLLIMATION FOR 5" to 16"
MEADE & CELESTRON SCT

Also Meade Lightbridge

\$16⁹⁵ 6976 Kempton Rd.
Centerville IN 47330
(MOST MODELS) 765-855-5109 USA
INCLUDING SHIPPING www.bobsknobs.com

bigbinoculars.com

Astronomical binoculars (40mm - 150mm) and accessories at down-to-earth prices. Visit our online store at www.bigbinoculars.com or call toll-free 9:00am to 5:00pm (EDT) - 866-BIG-BIND (244-2460)

FUJINON MIYAUCHI OBERWERK

The Best-selling Astronomy Magazine on the Planet!



Subscribe to Astronomy now and **SAVE 39% OFF** the newsstand price!

Every issue brings you:

- **Spectacular** photography
- **Expert** observing tips
- **Top-notch** science reporting
- **Monthly** pull-out star maps
- **And much more!**

PLUS, subscribers get great online features:

- **StarDome Plus:** Your guide for locating stars, planets, asteroids and more
- **Equipment review archive:** Expert analysis of hundreds of telescopes, binoculars, cameras and more
- **Star Atlas:** 24 zoomable star charts show 45,000 stars and 800 deep-sky objects!
- **And many more!**

Subscribe today!
www.Astronomy.com
 or call 1-800-533-6644

P16276

A03A1

Background: NASA/ESA/The Hubble Heritage Team (ST/SCIENCE)

NEAF 2012

The League was represented by Vice President John Goss, Secretary Bill Bogardus and me at the Northeast Astronomy Forum and Telescope Show the last weekend of April. Lots of people stopped by our booth and shared what's going on in their astronomy clubs as well as inquiring as to what the League is all about.

I would like to express our thanks to Alan Traino and the entire NEAF team for hosting such a successful event. It is truly the premier place to see what's new in

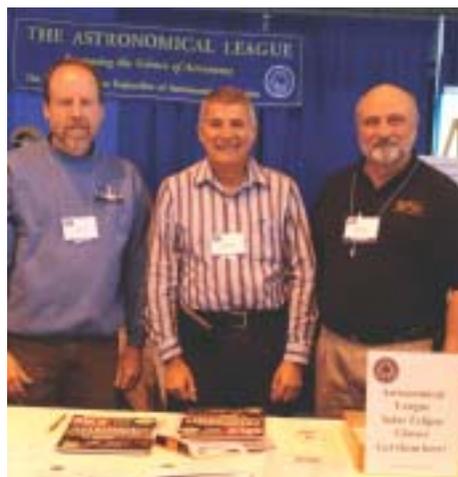


President's Notes

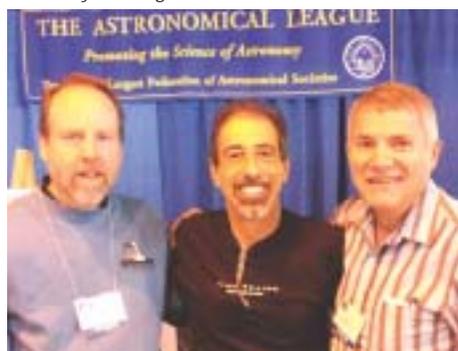
astronomy as well as traditional products. I appreciate the effort that the solar astronomers, organized by Barlow Bob, bring to NEAF each year.

Special offerings included the showing of the documentary *Saving Hubble* which chronicles the successful efforts to

save Hubble's budget, allowing funding for the last servicing mission.



Left to right: League Vice President John Goss, League President Carroll Iorg, and League Secretary Bill Bogardus.



John Goss, Alan Traino, and Carroll Iorg.



Marge Christen from Astro Physics.



Carroll Iorg presented a League Certificate of Appreciation to ASKC president, Rick Henderson, for ASKC's longtime support of the League.

PHOTO COURTESY GARY BITTMAN



The popular vendor area at NEAF.

Comet discovered by amateur astronomer Fred Bruenjes

Congratulations are in order for League member Fred Bruenjes from Warrensburg, Missouri, who discovered a new comet. Comet C/2012 CS (Bruenjes) was discovered at his observatory on February 10. Way to go, Fred!

Presentation at ASKC meeting

It was my pleasure to give a League update and information about League benefits at a recent meeting of the Astronomical Society of Kansas City. A young member who attended the meeting, Justin Tieman, was excited to learn of the A.L.'s National Young Astronomer Award and other youth awards. He applied for

Continued on page 6

TITLE PHOTOGRAPH COMPLIMENTS OF TOM S. MARTINEZ, ASKC

IDA's Night Watch

One of IDA's most informative and enjoyable efforts is its monthly *Night Watch*, an email newsletter. It arrives like clockwork every month and is full of interesting news about nighttime lighting issues. It has the latest updates about IDA itself, but more importantly, it has relevant news about the fight against light pollution and light trespass worldwide. The *Night Watch 06 March 2011 {sic.} - Volume 4, Issue 3* is on the computer screen in front of me as I write this column. It is my inspiration for the column. *Night Watch* lists amongst many other items, IDA's local Arizona battle against a proposed law that would allow more widespread use of bright electronic billboards increasing light pollution, light trespass, and, in my opinion, driver distraction. It also notes IDA's response to a controversial Sedona, AZ, 89a highway lighting project. In regard to electronic billboards, there is also an article on problematic electronic billboards at BC Place in Vancouver, BC, Canada.

Hong Kong is probably the last place you would imagine someone trying to fight light pollution, but the March 2012 issue of *Night Watch* has a YouTube link to CNN's Richard Quest's video on how night often becomes day in Hong Kong. It is extremely well done and fascinating. Think of the thousands of unlucky Hong Kong residents having to sleep in bedrooms across the street from a brilliant electronic screen shining directly into their rooms. Actually, this is an urban nightmare all over the world, including the United States where there are street lights, advertising signs lit by traditional means, and newer, ever more brilliant, electronic billboards shining into thousands of living rooms and bedrooms. There are several other links to fascinating YouTube videos in the March 2012 *Night Watch* issue, including one showing London astronomers being taken to a dark sky location. For some of them, it was the first time they ever saw the Milky Way or the Andromeda Galaxy.

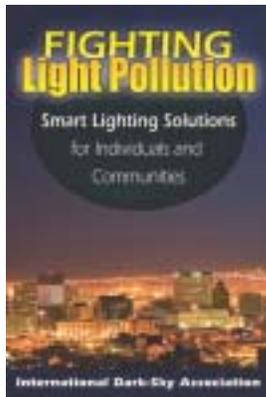
This issue of *Night Watch* has several articles on the Globe at Night Project, which



International Dark-Sky Association

is a very important ongoing effort to use simple star counts to draw the public to the beauty of the night sky and to provide a means of roughly quantifying the degree of light pollution in multiple locations worldwide. **Globe at Night** is extremely important, and I hope as many of you as possible become active participants and supporters of this superb program. Please visit its website at: www.globeatnight.org.

The March 2012 issue of *Night Watch* has several articles on communities changing their lighting systems for better energy efficiency and for more protection of the nighttime sky. There are articles on Dark Sky places and many other informative news notes. It would take several hours to read all the articles and to follow all their



associated links. Become a subscriber to *Night Watch*. All you have to do is to go to the IDA website at www.darksky.org and sign up for *Night Watch*. The sign up box for this wonderful monthly electronic newsletter is located in the lower right hand corner of the IDA homepage. Give it a try. It is interesting and a lot of fun. It is also free, though, of course, *Night Watch*

has links which make it easy to join or contribute money to IDA.

Whatever you decide to do with regard to joining or contributing to IDA, at least get informed about light pollution and light trespass and their harmful effects on our nighttime skies. Become active in the fight against light pollution in your own community. It will benefit your skies and your community. It is often a tough fight, but *Night Watch* and the IDA website show you are not alone. There are numerous other persons who feel the same way about light pollution and doing something about it, often with very good results. ✨

TIM HUNTER

Co-Founder and Past President, IDA
3225 N. First Avenue
Tucson, Arizona 85719-2103
Phone: 520-293-3198; FAX: 520-293-3192
E-Mail: ida@darksky.org;
www.darksky.org

Reflector

QUARTERLY PUBLICATION OF THE ASTRONOMICAL LEAGUE

Issued by the Astronomical League in March, June, September, and December, the *Reflector* is mailed directly to each individual member of its affiliate societies and to members-at-large as a benefit of League membership. Individual copies of the *Reflector* are available at \$2.00 each or as an \$8.00 per year subscription through the League national office. ISSN: 0034-2963.

Reflector and Club Roster Deadlines

December Issue October 15th
March Issue January 15th
June Issue April 15th
September Issue July 15th

Written and graphic material from this publication may be reprinted only for non-profit benefit of interested parties, provided specific credit is given to the writer(s), the *Reflector*, and the Astronomical League. Any other use of material, including graphics and photographs, is subject to express permission from the Editor and the Astronomical League Publications Director.

National Officers

President

Carroll Iorg

Astronomical League National Headquarters
9201 Ward Parkway, Suite 100 • Kansas City, MO 64114
816-444-4878 • president@astroleague.org

Vice President

John Goss

932 Lee Lane • Fincastle, VA 24090
540-966-4606 • vicepresident@astroleague.org

Secretary

Bill Bogardus

190 Pheasant Place
Greenport, NY 11944-2784
631-477-2246

secretary@astroleague.org

Treasurer

Joanne Hailey

1116 42nd Street • Des Moines, IA 50311
515-277-2739 • treasurer@astroleague.org

Executive Secretary

Ron Whitehead

4912 Amberwood Drive • Dayton, Ohio 45424-4606
937-233-5843 • executivesecretary@astroleague.org

National Office

Joe Alburty, Office Coordinator

Astronomical League National Headquarters
9201 Ward Parkway, Suite 100 • Kansas City, MO 64114
816-DEEP SKY

National office: leagueoffice@astroleague.org

Society rosters: rosters@astroleague.org

League sales: leaguesales@astroleague.org

National Observing Program Coordinators

Michael G. Benson
ocentaurus@aol.com

Aaron B. Clevenson
aaron@clevenson.org

Reflector Staff

Editor

Andy Oliver
P.O. Box 2694
San Angelo, TX 76902
325-226-9172
editor@astroleague.org

Assistant Editor

Ron Kramer
Mobile: 704-661-0406
rjipublishing@aol.com

Photo Editor

Terry Warner
614-425-7336
terry_warner2000@yahoo.com

Advertising Representative

John Goss
932 Lee Lane
Fincastle, VA 24090
540-966-4606
goss.john@gmail.com

Coming Events Editor

John Wagoner
astrowagon@verizon.net

Design/Production

Chuck Beucher
cbeucherjr@kc.rr.com

Letters to the Editor

Send to: editor@astroleague.org
Subject line: "Letter to Editor"

WWW.ASTROLEAGUE.ORG

AstroMax
The AAAA Online Store



The Astronomer's Journal
An Observing Log & Sketch Book

The Astronomer's Journal
An Observing Log & Sketch Book
Only \$10!

100 pages printed on heavyweight paper, 16 fields of entry, two sketching circles, ample room for notes, spiral bound to lay flat. Newly revised by the AAAA.

Also Available: Messier & H400 Journals
www.AstroMax.com
American Association of Amateur Astronomers
P.O. Box 7981, Dallas, TX 75209-0981
E-Mail: aaaa@astromax.com

BRINGING ASTRONOMY TO THE PEOPLE



ASTRONOMY DAY

Oct. 20, 2012 & April 20, 2013

The latest tips and information, as well as the Astronomy Day handbook and entry form for the Astronomy Day Award, are available on the League's Astronomy Day web site.

Here's your chance to spotlight amateur astronomy while showing off your club!

<p>Displays</p> <ul style="list-style-type: none"> • Club information • Astrophotos • Light pollution • Tonight's sky 	<p>Discussions</p> <ul style="list-style-type: none"> • Relative distances • Moon Landing Hoax • Life elsewhere • Black Holes
<p>Demonstrations</p> <ul style="list-style-type: none"> • Telescope varieties • Telescope basics • How to find objects 	<p>Telescope Views</p> <ul style="list-style-type: none"> • Solar filtered • Moon • Daytime Venus • Daytime Jupiter • Landmarks

For more information, contact
Rickey Ainsworth
Assistant Astronomy Day Coordinator
616-929-1721
rainsworth@grmuseum.org
astroleague.org/al/astroday/astroday.html

the award and has been awarded first place in the 2012 competition. The ASKC has been a longtime supporter of the League, and I was honored to present a certificate of appreciation to club president, Rick Henderson.

The ALCOR is the club's channel for receiving communication from the League

Your local club's ALCOR is the person who gets communications from the League, including news between *Reflector* issues. We encourage ALCORs to share this information with their club members in the club newsletter, online groups, etc.

Astronomical League considering International Club Membership category
Several international astronomy clubs have recently approached us about the possibility of becoming League members so their members can have access to the observing award programs and other benefits.

The League Council and the Bylaws Committee are currently considering this option.

ALCON 2012 July 3-7 at Marriott Lincolnshire Resort

I hope to see many of you at next month's ALCON 2012 in Chicago. You can register by logging in to www.astroleague.org to access the convention website. This promises to be an outstanding event.

Great skies!

Carroll Long

SkyTools 3 Observing Software



Save up to 50% with our club discount program!

- Simple yet Powerful Planning
- Easy to use Finder Charts
- Real Time Telescope Control
- Interactive Atlas
- Integrated Log Book
- Exposure Calculator
- Mount Alignment Tool
- Highly corrected databases

Find out more at Skyhound.com



Cloudcroft, New Mexico

Hone your observing skills

Are you searching for intriguing celestial subjects on which to sharpen your observing, recording, or sketching skills? Do you want to share your experiences with other amateurs who observe the same thing? Try the "Observer's Challenge!" (Ivastronomy.com/observing-challenge). Submit your observations to either Las Vegas Astronomical Society members Fred Rayworth, rayworth1969@hotmail.com, or Rob Lambert, scope_geek@gmail.com. The selected objects for this quarter are: June — galaxy group NGC 5353, July — emission nebula M17, and August — globular cluster M22.

Astronomical League office email addresses

Society rosters: rosters@astroleague.org
National office: leagueoffice@astroleague.org
League Sales: leaguesales@astroleague.org

The Astronomical League is pleased to announce the top finishers for the 2012 National Young Astronomer Award program. Thousands of high school students from across the country were eligible to compete for this year's award. Our national judges, all noted astronomers, once again were **Dr. David Hans Hough**, professor at Trinity University, San Antonio, TX; **Dr. David L Lambert**, from the University of Texas; and **Dr. Robert Stencel**, professor at the University of Denver. We appreciate their valuable contributions that they give to this program.

All top finishers receive a complimentary membership in the **International Dark-Sky Association**. The first and second place finishers each receive an expense paid trip to the **2012 ALCon "Celebrate Starlight"** in Chicago, and the first place finisher receives a lifetime pass to **McDonald Observatory**. The League would also like to recognize **Explore Scientific**, the sponsor of the program. In addition to the sponsorship of the NYAA program, it generously donates one of its fine telescopes to the first place winner.

First Place: Justin Tieman

A freshman at Blue Springs Freshman Center in Blue Springs, MO, Justin Tieman is awarded first place in the 2012 NYAA



competition for his work on two projects, "Alien Worlds," and "Space Rocks." Both projects involved precise brightness measurements

to generate differential light curves of stars in the Alien Worlds project, and of asteroids in the Space Rocks project. Justin found that small light fluctuations could indeed be measured using an 11 inch SCT mounted with a QSI 520i CCD camera and processing the resulting images with AIP4Win software. He was able to detect differential light curves due to transiting exoplanets and to rotating asteroids, in the respective projects.

Justin encountered errors since his equipment was operating at the edge of its design limits. "Some common problems to consider are not allowing enough time to get a good trend in the data, and not being able to control the weather. Source of error include atmospheric extinction, clouds, or poor transparency, light from the moon, and light from cities. All of these sources of error cause changes in the measured light from the star." He would like to continue his work

2012 National Young Astronomer Awards

*By John Jardine Goss,
Astronomical League Vice President*

on measuring and evaluating light curves from an asteroid, eventually collecting enough data to allow him to construct a three-dimensional model of that asteroid.

Second place: Travis Le

Travis Le, a senior at the Punahou School in Honolulu, HI, is the 2012 NYAA second place finisher.



The purpose of "Determining 'Hot Spots' Through Correlations of CMEs and Solar Flares" was to detect possible "hot spots" for the

appearance of active regions on the sun and to arrive at a list of dates for the next few

years of when dangerous Coronal Mass Ejections could possibly have an impact on the Earth.

Travis found five "hot spots" on the sun and he created prediction tables for each one.

Since the current solar cycle will reach a solar maximum in 2012, knowing when a "hot spot" will occur will help lessen the impact of CMEs.

Third Place: Brian Graham

Brian Graham, a senior at Southridge High School in Beaverton, OR is this year's third place finisher. His research question was,



"What is the effect of telescope tracking error on the accuracy of exoplanet light curves?"

To measure the light curves from his sample

stars, Brian used a Meade 12 inch LX200 telescope with an ST-7 CCD camera from Santa Barbara Instrument Group. He obtained the predicted transit times and the locations of the stars HD189733b and TrES-3b from the Exoplanet Transit Database. Brian found that when the tracking error was removed, the depth and duration of the transit light curve were improved significantly. ✨

Explore the Moon



With our brand-new Moon globe!

Sky & Telescope, the essential magazine of astronomy, has produced a beautiful and extremely accurate new globe of the Moon. Unlike previous Moon globes based on artistic renderings, this new globe is a mosaic of digital photos taken in high resolution by NASA's Lunar Reconnaissance Orbiter under consistent illumination conditions. The globe shows the Moon's surface in glorious detail, and how the nearside actually appears when viewed through a telescope. It also shows the farside in equal detail. The globe includes 850 labels that identify major basins (maria), craters, mountain ranges, valleys, and the landing sites of all the Apollo missions and robotic lunar landers.



\$99.95
Item # M000011

Call toll free 888-253-0230 • Order Today! • www.ShopatSky.com

CPC DELUXE HD 1100
(model shown)

capture the night sky

Introducing Celestron's **NEW CPC Deluxe HD Series**, which combines Celestron's newly designed fork mount with its award-winning EdgeHD optical system. The CPC Deluxe HD is a superb visual instrument and with the addition of our optional Pro Wedge,* Guidescope* and **NEW Nightscape CCD camera** becomes a serious astrophotographer's tool.

Nightscape CCD camera

- + 10.7 MP CCD color sensor provides 3760 x 2640 resolution
- + Astro! X software
- + Regulated thermoelectric cooling (TEC) and adjustable fan dramatically reduce thermal noise

*Pro Wedge, Guidescope package and Nightscape are sold separately.

Learn more about Astronaging by scanning the QR code with your smart phone or visit www.celestron.com/astronaging

CELESTRON
www.CELESTRON.com

Our Customers Speak

"Both guys handled my recent request/purchase in a very personable and timely manner. I had the distinct impression they were 'all about the customer.' I will recommend OPT to all amateurs I come across." — M.A.

"...very helpful and had answers for all my questions on my new scope and accessories. I will be doing all my business with OPT from now on. This is my second scope I have ordered from OPT." — W.R.

"You are a true asset to all things Astronomy, and I was proud to have you represented at the conference." — R.C.

"...your professionalism and attention to customer detail, client service and after sales satisfaction is exemplary..." — D.K.

"I do feel better knowing I am dealing with good people like you!" — W.P.

"OPT is the place to go for all your astro needs. (I was not paid to say that.)" — D.A.

"You guys rock...great customer service." — W.F.

OPTtelescopes.com | 800.483.6287 | Respected by vendors, trusted by customers!

DEEP SKY OBJECTS

SEVENTH OF A SERIES

THE BRIDAL VEIL NEBULA

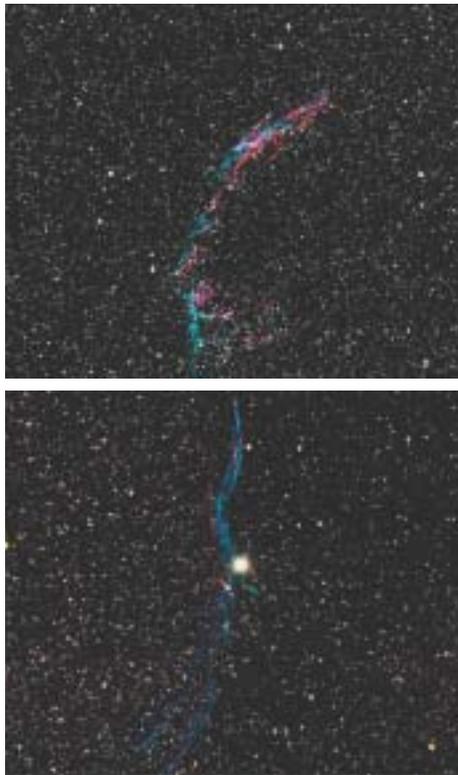
By Dr. James Dire, Kauai Educational Association for Science & Astronomy

Cygnus, the Swan, is perhaps the best-known Milky Way constellation gracing the summer skies. Some know it as the **Northern Cross**, an asterism contained within the constellation. Regardless, the constellation's location along the galactic equator provides it with a wealth of star clusters and emission nebulae. One of the most striking objects in the constellation is the **Bridal Veil Nebula**, discovered by William Herschel in 1784.

The Veil Nebula is a huge supernova remnant spanning 2.6 degrees. The nebula is often called the Great Cygnus Loop, the center of which is located 3 degrees south-southeast of the star Gienah, although there is nothing at the center. The brightest parts of the nebula are arcs located on the southwest and northeast side of the loop. These regions are visible in 3-4 inch telescopes in dark skies, but are best viewed in 8-inch or larger instruments.

The remainder of this article will describe those two arcs.

The western arc goes by many names: NGC6960, the Network Nebula, the Lacework Nebula, the Witch's Broom Nebula, and the Western Veil Nebula. This is the easiest part of the Veil Nebula to find since the 4th magnitude star 52 Cygni lies right on the edge of the arc. 52 Cygni lies 3.25 degrees due south of Gienah. Center 52 Cygni in a low power eyepiece and slew north of the star to view the brightest portion of the Western Veil. An O-III filter



These images of the Eastern, left, and Western Veil Nebulae were taken by the author with a canon 30D camera attached to a 102mm f/6.3 refractor.

may enhance the contrast of the nebula.

The north section of the Lacework Nebula is narrow and has a tightly wound filamentary structure. South of 52 Cygni, the filaments are spread out much farther in right ascension and may require averted vision to see.

Like the western portion, the eastern portion of the Veil Nebula has several names: the Network Nebula, NGC6992, NGC6995 and of course, the Eastern Veil Nebula. The northernmost half of the Eastern Veil Nebula is NGC6992. This is the brightest part of the Cygnus Loop. It can be found a half-degree southwest of the midpoint between the stars Gienah and Zeta Cygni. Like the Eastern Veil Nebula, its extent reaches far beyond the eyepiece field of view in an 8-inch telescope. Panning north and south is required to see the nebula from end-to-end. The southern half of the Network Nebula, NGC6995, is broader and fainter than the northern half.

The Veil Nebula is 1500 light years away. Studies of the expansion rate of the gases indicate that the supernova that created it occurred 5,000-10,000 years ago. The hues of the various filaments of the nebula range from red to white to blue, as can be seen in the accompanying images. However, these colors cannot be seen in the eyepiece due to the low intensity of the light. The exposures used for these images duplicate the detail that can be seen in mid-sized amateur telescopes. ✨

The League Book Service is here for you!

Are you searching for that special astronomy book but don't know where to start? Let the Astronomical League's Book Service fill your request! With its 10% discount and free shipping, how could you not do otherwise?

This is the perfect place for members to go when looking for books currently in print about astronomy, cosmology, mathematics, and physics. Titles can be ordered from many well-known astronomy book publishers such as Sky Publishing, Cambridge, Oxford, Willman-Bell, Springer-Verlag and others.

Moreover, items available through the Book Service are not limited only to books. Posters, charts, and atlases are also available.

Ordering is simple enough. Just provide the name of the item, author, publisher (if known), the retail price and the shipping address. Be sure to

include a check or money order – payable to Astronomical League Book Service – for the retail price minus 10%. Shipping and handling are free. Sorry, credit cards are not accepted.

Mail your requests to:

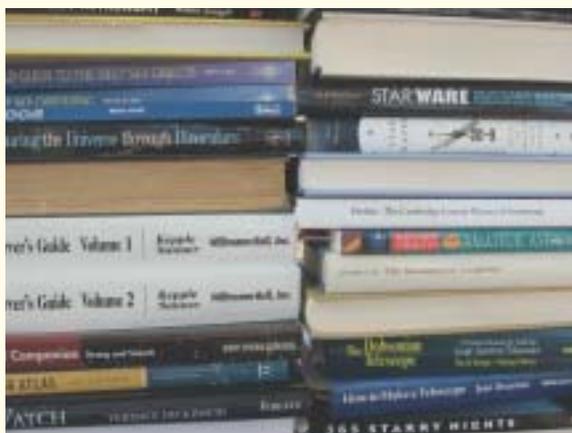
Star 'N Space Books, 324 W. Gurley St., Prescott, AZ 86301

You should receive your order within two to three weeks.

This benefit is made possible by the efforts of League volunteer

Marilyn Unruh, proprietor of **Star 'N Space Books**. She is also an avid amateur astronomer. Like many of the League's members, she desires to help others enjoy our fascinating avocation. Marilyn notes, "This service allows me to give back to the astronomical community by doing something that I love to do – deal in books!"

For members who are looking to add to their library, the Book Service is definitely the place to go! ✨



My interest in amateur astronomy began in the mid-60's. How things have changed since I made my first observation, using a borrowed 60-mm refractor. I dreamed about getting an Edmund Scientific or Criterion 6-inch reflector during those years, however, the thought of owning either seemed impossible. The cost of these scopes made them almost cost prohibitive for the average family during this period, especially mine.

I recently talked with a friend who is the owner of a local bicycle shop. He told me that his business had really been lacking this past Christmas as compared to previous years. It was his opinion that kids would prefer to own a smart phone or one of the many exciting electronic games, instead of a BMX bicycle.

There possibly could be a bit of negative peer pressure from the friends of the younger amateur. Why? It seems to me that amateur astronomy does not garner the interest that it once did. It's really not the "in-thing" like was in days past, or especially during the beginning of the space age.

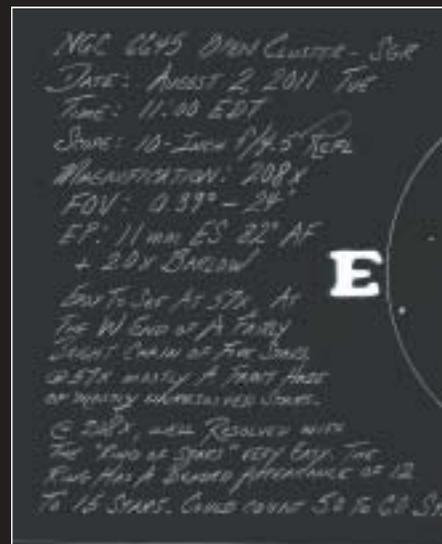
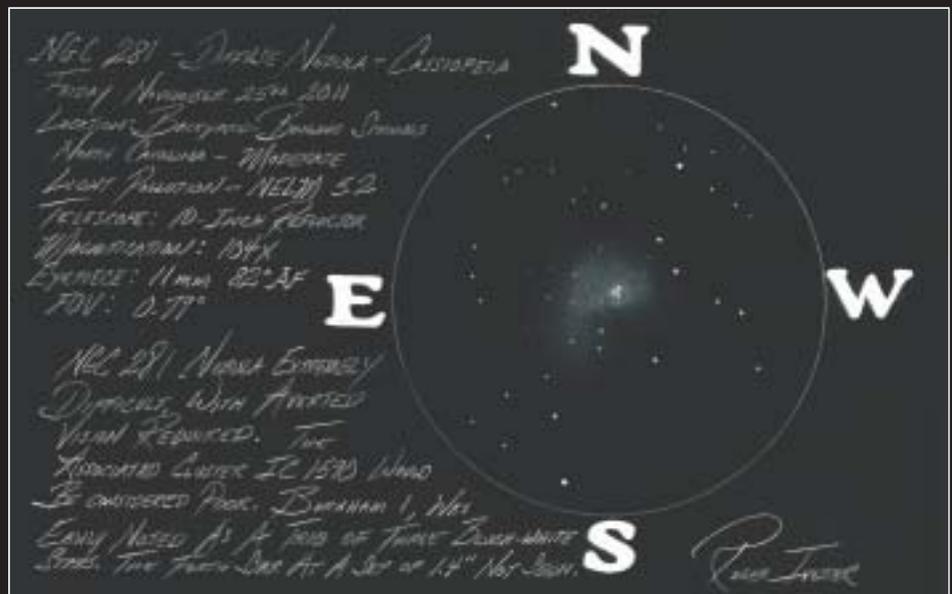
I will never forget how proud I was when giving an astronomy presentation to my 8th grade science class in 1967.

In my program, I demonstrated how to use a 60-mm refractor telescope. I was a real hit...even if it only lasted for the remainder of the day.

The current state of astronomy clubs

What about astronomy clubs? For the most part, they are having a difficult time, but not all. Why? The possible lack of a serious interest in astronomy by both the younger group

THE CHANGING VIEW OF

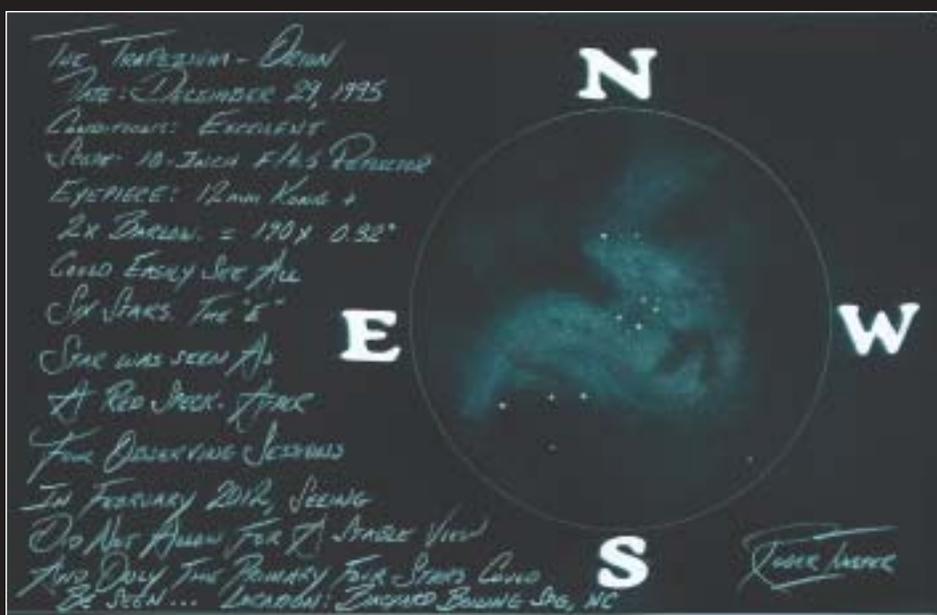


and adults, alike. It would also seem that very few have the time to participate in a club setting, or assume a leadership position. Everyone is just so busy these days. I think that we can all agree that life is a bit more complicated than it was in earlier times.

Digital imaging

With the advent of digital imaging cameras and other high-tech astrophotography equipment, many amateurs forgo visual observing all together. I personally know very few amateurs that are visual

AMATEUR ASTRONOMY



observers, which in my opinion, is the essence of amateur astronomy. It can be very difficult for the new amateur to learn the basic fundamentals of observing, while waiting for an imaging camera to complete its function.

I don't want to downplay the considerable skills, and the expensive equipment required to make those incredible images. I really enjoy them and spend a great deal of time comparing to my sketches.

It is my opinion...the new amateur needs to spend

a little time as a visual observer, before entering the world of digital astronomy. Taking notes and attempting a simple sketch can advance their knowledge and skills. From my experience, once you spend time making a sketch, and taking detailed notes, you will never forget what the object looks like.

When someone mentions a deep-sky object that I am familiar with, it is often easy to think back and remember most of the faint details. I can close my eyes, and it is almost as if I am sitting beside my scope, pencil and pad in hand, and drawing all of the faint details. It can be like reliving that night again, and this can be a very good feeling.

I am just a bit old fashioned, and have never left the simple pleasures of pencils, erasers, clipboards, making sketches and taking notes...and more importantly, looking through an eyepiece. It should be the desire of every amateur, to at least attempt to observe all of the Messier objects. The Astronomical League has too many observing awards to list, and this can be good. If someone has an observing goal, they are most likely to continue their interest in amateur astronomy and hopefully will embark on a journey that can last a lifetime.

Let's fast forward twenty years, when most of the 60's and 70's era amateurs are no longer observing. Will there be anyone out in a backyard, somewhere in America, looking through a telescope, with pad and pencil in hand, making a sketch, or taking some notes? ✨

Roger Ivester

Boiling Springs, North Carolina

Member: Las Vegas Astronomical Society

rogerivestor@me.com

Modern astronomical imaging has produced surveys of galaxy clusters out to a distance of over ten billion light years, beyond a redshift of one. Individual galaxies are seen to redshifts of eight, and possibly ten, corresponding to lookback times only a few hundred million years after the Big Bang. The James Webb Space Telescope scheduled to be launched in a few years will use its infrared capabilities to examine even farther back in time. But the original galaxy cluster survey was done in the 1950's by George Abell, as he scrutinized the then new Palomar Observatory Sky Survey plates for faint groupings of galaxies, classifying these "clusters" by density, redshift, type and magnitudes. Revisions over the years included an extension of the survey to the southern sky, published in 1989, with improvement in accuracy of the magnitude and distance parameters.

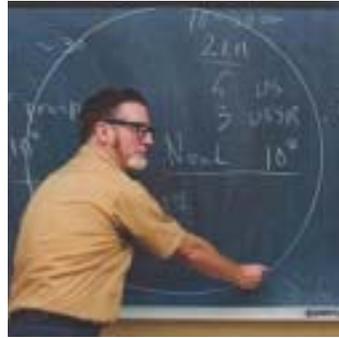
Since I started using a telescope in the mid 1980's galaxies have held a fascination. Their individual beauty and subtle variation reflect their history, environment and interactions. Their membership in groups and clusters we now know represents the unseen attractive hand of dark matter, shaping their courses and lives in ways we've only begun to understand. We truly stand at a threshold regarding these magnificent objects, where research enhances the visual experience of viewing them in a simple reflecting telescope.

The paper, *A Catalog of Rich Clusters of Galaxies*, from the May, 1989 *Astrophysical Journal Supplement Series* (70: 1-138) by Abell, et al, presents an update to his original 1958 paper, with southern clusters, and newer data included. It also has redshifts for approximately 25% of the selected clusters, and perusal of this distance data gives insight into the three

AS FAR AS ABELL

By Dave Toteston

dimensional nature of the universe. Virgo, which is the closest cluster and includes the Milky Way and Local Group, is not included in Abell's catalog as it is too spread out to appear



George Abell taught at the University of California, Los Angeles.

as a cluster on the POSS plates. Its core lies approximately 65 million light years distant. The Coma Cluster, Abell 1656, with a redshift of 0.02 that corresponds to a distance of 300 million light years, is one of the nearest clusters in the catalog. Coma is the richest galactic hunting ground for amateur telescopes, and has a population estimated at several thousand galaxies. I have a project underway to view galaxies in its central one square degree, and have seen over 700 galaxies with two thirds of the area searched. My 32" reflector allows me to see magnitudes as faint as 20th, and I estimate over one thousand galaxies will be visible in the central square degree! Redshifts are not available at this time for those fainter than magnitude 18, and there are no doubt background galaxies among them. The whole cluster spans twenty five square degrees on the sky. To search it at this level of detail would entail over a thousand hours of eyepiece time, and possibly

yield 4,000-5,000 galaxies.

Abell 2065, the Corona Borealis cluster, had for a long time been held as a benchmark for visual observers. The classic series of Webb Society Deep Sky Observing Handbooks from the early to mid-1980's included in its seventh volume on clusters of galaxies, a description of Abell 2065 as seen through a 36" telescope at McDonald Observatory. It was described as by Ron Buta as "very difficult", and "except for the three brightest galaxies, a challenge in the 36-inch". Few amateurs in 1982 had access to a 36" telescope. About ten years later I was able to purchase a 25" reflector and start hunting for some of these challenging objects. Barbara Wilson and Larry Mitchell included Abell 2065 on their infamous "AINTNO" list, requiring 45



The Coma Cluster, Abell 1656, contains over 1,000 identified galaxies.

galaxies in this cluster to be viewed to attain the award. In 2004 I spent four and a half hours over two nights observing fifty one galaxies in this cluster, the most technically challenging viewing I have done, as many galaxies had no guide star in the high power field. With a redshift of 0.07, Abell 2065's distance is a little over one billion light

years away, and its brightest galaxies are 16th magnitude.

But this is really just the beginning of the distance scale for galaxy clusters. The "moderate distance" clusters are represented by a group of three Abells: 1958, 1961 and 1963, all at redshifts near 0.225, or 2.8 billion light years. These three are very close to each other on the sky, laying only 15-20 arcminutes apart in central Bootes, and can be seen in the same wide field eyepiece view. Most likely, they are physically connected within a Supercluster, a higher ordering of galaxy clusters which comprises the largest gravitationally bound objects in the universe. Superclusters can stretch for billions of light years and are thought to also be influenced by dark matter. Abell 1963 has a 17th magnitude galaxy, otherwise all within these three clusters are at 18th -19th magnitude. On an average night only three galaxies could be seen in Abell 1961, the faintest of the three, in my 32" scope from my home in Minnesota.

If one looks through all the redshifts in the updated Abell catalog there are two clusters

that stand out as more distant than the rest: Abell 370 and Abell 851, with redshifts of 0.373 and 0.402, respectively. The latter is over four billion light years away, and deep photographs show many hundreds of galaxies. These are smaller, much smaller

than our grand spiral Milky Way, and dozens of them would fit between our galaxy and the Andromeda galaxy, only 2.2 million light years away. With my 32" f4 reflector from the pristine western Oklahoma skies at 4500 feet elevation, I searched the area of Abell 370, six arcminutes wide and just 1.7 degrees SSW of M77 in the neck of Cetus. With an Ahabian obsession, I struggled with this whale that

fought being captured. Atmospheric blurring and gusts of wind disrupted the quest and I had to take down my mainsail, as gusts to 20-30 mph weathervaned the scope. The cetacean used my ladder as a weapon, blowing it down and nearly harpooning me as I sat. In the end the effort was partially redeemed, as the main two large elliptical galaxies, the cD behemoths of the deep, binary cluster, along with six of their pod, were caught in the net of my instrument. A whale of a scope you might say, straining against the elements at nearly a thousand power. Alas, the gravitational arc, that ambergris of aspiring amateurs, escaped detection 'til another day.

Nestled between the feet of the Great Bear lies the most distant of Abell's four thousand clusters. AGC 851's light traveled between 4 and 5 billion light years to reach us, and using my 25" scope in 2004 from the Texas Star Party, I was able to spot the four brightest galaxies of this cluster as one mass, unseparate in those conditions. It is interesting to contemplate what that cluster may appear like today, with the subsequent merging and evolution of its smaller members inexorably altering its cosmic countenance.

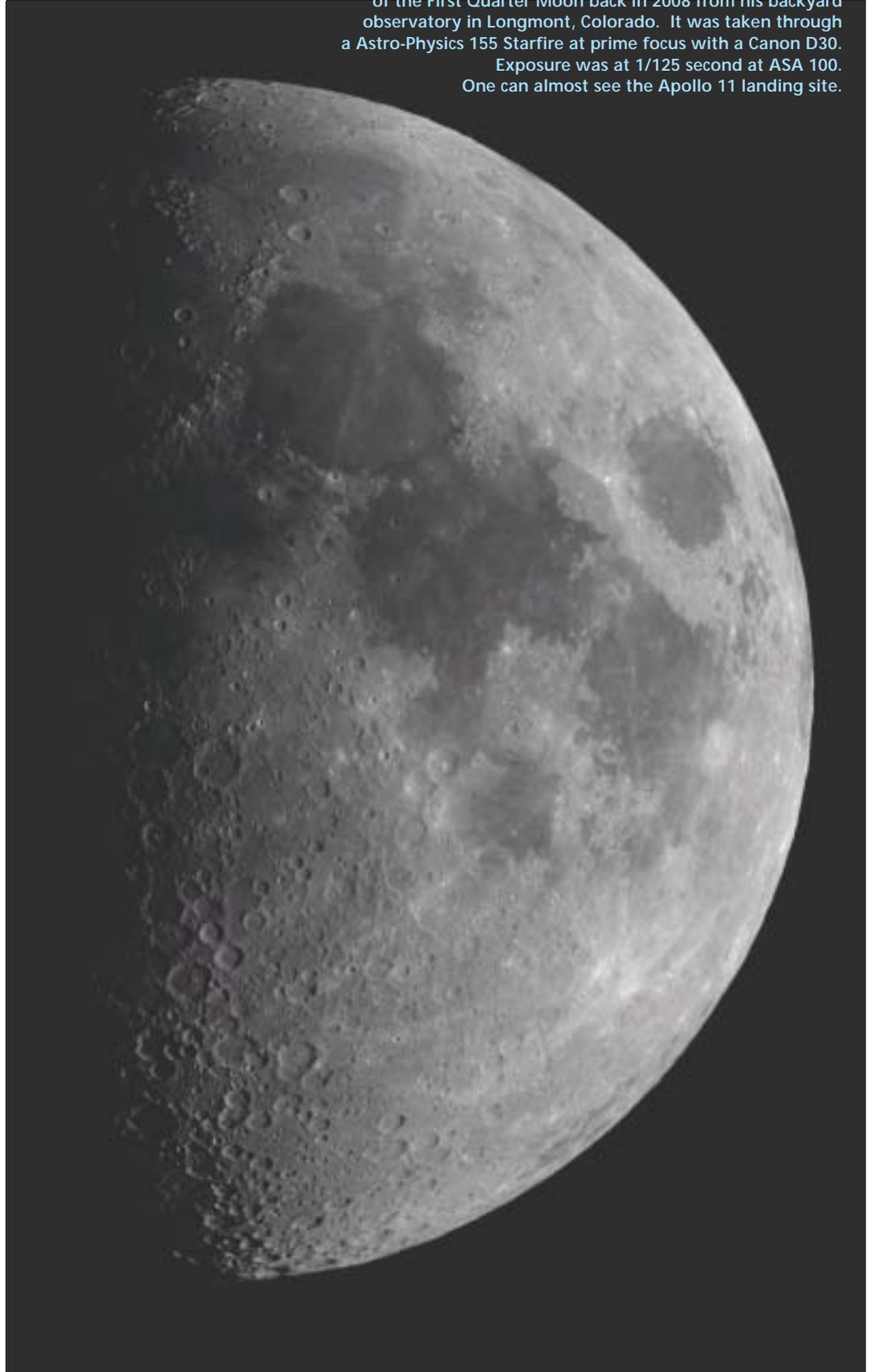
Beyond Abell, the literature is replete with clusters dating back to within a few billion years of the Big Bang, an event dated at 13.7 billion years ago. I have spotted some approaching six billion light years away using my 32" instrument and near eight billion using a state-of-the-art 48" telescope. The magnifying power of gravitational lensing has even allowed me a glimpse of a galaxy at a redshift over three. Captain Ahab would approve. ✨

References

- ApJ 430, p. 107, July 20, 1994.
Sky and Telescope, April 1993, p. 23.
Abell, et al: *A Catalog of Rich Clusters of Galaxies*, May, 1989. *Astrophysical Journal Supplement Series* (70: 1-138).

The Astronomical League invites its members to submit astrophotography for publishing in *Reflector*. When sending photos, please include a brief explanation telling us when and where the photo was taken, your club affiliation, what equipment was used, and any computer processing that was involved, if any.

Our regular contributor, Brian Kimball, took this photograph of the First Quarter Moon back in 2008 from his backyard observatory in Longmont, Colorado. It was taken through a Astro-Physics 155 Starfire at prime focus with a Canon D30. Exposure was at 1/125 second at ASA 100. One can almost see the Apollo 11 landing site.



The **Leslie C. Peltier Committee** of the **Astronomical League** has selected **Mike Simonsen**, Member-at-Large of the **Astronomical League** and member of the **American Association of Variable Star Observers**, as the 2012 recipient of the **Leslie C. Peltier Award**. The presentation will be made at **ALCon 2012** in Lincolnshire, Illinois.

Mike joined the **American Association of Variable Star Observers (AAVSO)** in 1998 after retiring from the music business. He has been interested in astronomy since youth, but playing saxophone, flute, and piano in smoky nightclubs and concert halls until the wee hours of the morning precluded doing any serious observing for decades.

In the interim, Mike became a highly regarded landscape designer. During this time, he began amassing thousands of visual observations of variable stars by night while designing and building landscapes by day. Needless to say he often showed up to work with little or no sleep, at all. "I guess, you could say, I had my hands and knees in the dirt, but my heart and head in the stars." As his passion for variable star science grew, so did Mike's involvement with the AAVSO in numerous volunteer efforts.

Now Mike is one of the world's leading variable star observers and advocates. Since 1998 he has submitted over 75,000 variable star observations to the **AAVSO International Database**. He also is the 11th certificate recipient of the **Variable Star Program** of the **Astronomical League**.

Mike is currently employed by the AAVSO as **Membership Director and Development Officer**. Among the many hats Mike wears, he is in charge of all variable star chart production for the AAVSO, as well as coordinator of the **AAVSO Mentor Program**, **Speakers Bureau**, and **Writers Bureau**. Mike is also the section leader of both the **AAVSO Cataclysmic Variable Section (CVnet)** and **Long Period Variable (LPV) Section**.

His current area of research is **Z Cam stars** (a type of dwarf novae) and he is the author or co-author of more than



twenty peer-reviewed papers on cataclysmic variables. His work on the subject is highly regarded by professional astronomers.

In 2005, Simonsen received the AAVSO's highest honor, the **AAVSO Director's Award**. In October 2011, Mike became only the third recipient of the **Charles Butterworth Award**, the **British Astronomical Association Variable Star Section's** highest honor.

Mike's astronomy blog, **Simostronomy**, is among the top science blogs on the Internet, with over 20,000 monthly readers. He is also a staff writer for **Universe Today** and has contributed articles to **Sky and Telescope** magazine.



An animated and enthusiastic speaker, Mike gives talks on stellar astronomy and variable star science to astronomy clubs, organizations, conferences and university groups throughout the United States each year.

Mike's observatory, named after legendary AAVSO observer and chart maker, **Charles E. Scovil**, houses two 12" LX200 telescopes. One is for visual use and one is for CCD observations, or as Mike likes to joke, "One for each eye!" He is now amassing both visual and CCD observations from home and the remote robotic telescopes of **AAVSONet**.

Mike, his wife Irene, and their five cats live in the Michigan countryside, in a house overlooking a small lake, surrounded by horse pastures and cornfields. In his spare time (what is that?) Mike enjoys maintaining their extensive perennial gardens, barbecuing, reading, writing, and obsessing over his fantasy football teams with his son, Jan.

We are very proud to present this award to Mike and are convinced that he will continue to make significant contributions to observational astronomy!

Nominations for future awards may be e-mailed to the chair. All nominations will be kept on file for future consideration. ✨

Leslie C. Peltier Committee
Roger S. Kolman, Ph.D., Chair
rskolman@yahoo.com
Barry Beaman, Russ Maxwell, Members

The Astronomical League helps members explore the wonders of our universe—maximize your membership!



Observing award programs. Just about everyone has heard of the nearly 38 AL observing clubs. These are a group of **nationally recognized** observing lists and activities. Some are suitable for novices, some are for intermediates, while others are strictly for advanced amateurs. These clubs provide a low-stress way to view the many wonders of the night sky.



League Awards. The Astronomical League wants to recognize those dedicated individuals who make astronomy happen. Every year, the League gives awards in several different areas: the Mabel Sterns Newsletter Award, the Webmaster Award, the National Young Astronomer Award, the Jack Horkheimer Young Person's Service Award, and others. People really appreciate the recognition!



Reflector Magazine. Every member receives this full color quarterly magazine that's published for League members by League members. Members are encouraged to submit articles and images for our national readership of almost 15,000 amateur astronomers. The magazine also puts members in touch with dozens of Star Parties located all over the country and features columns from other professional groups.

League Store. We have a great League Sales Office, run by a dedicated and talented staff. Our astronomical handbooks are low cost and very popular — another of the many benefits of League membership. League Sales is vastly expanding its inventory, has gone to a color catalog, and now has an on-line, credit card capability.



Book Service. Searching for that special astronomical title in print?

Separate from League Sales, the League provides a 10% discount on astronomy books with no shipping charge.

National Convention of the Astronomical League. At our National and Regional meetings, members rub shoulders with, among others, research astronomers, astronauts, authors, magazine editors, university professors, equipment manufacturers, as well as officers of the League. This is your chance to talk shop with those in-the-know.



National Voice. The League gives amateur astronomy a national voice on important issues, such as local, regional and national levels to fight light pollution and advance astronomical research.

www.astroleague.org



JAN KEISKI, ROSE CITY ASTRONOMERS

Editor's Note: Congratulations to all these outstanding astronomical observers! All awards except the Herschel 400 require current Astronomical League membership for eligibility. If you have questions about an award, please ask the corresponding Observing Club Chair. Their contact information can be found under the Observing Club site at www.astroleague.org/observing. If further assistance is required, please contact either of the two National Observing Program Coordinators.

Asteroid Award

No. 39, Jon Schuchardt, Regular, Delaware Valley Amateur Astronomers

Binocular Double Star Award

No. 18, Grant Martin, Astronomical Society of Eastern Missouri; No. 19, Anthony J. Kroes, Neville Public Museum Astronomical Society; No. 20, Mark "Star*Man" Johnston, Austin Astronomical Society; No. 21, Alex Vrenios, Patron Member; No. 22, Richard L. Tyson, Amateur Observers' Society of New York; No. 23, Steve Bell, Boise Astronomical Society; No. 24, Phil Dimpelfeld, Stonebelt Stargazers; No. 25, Bryan R. Tobias, San Antonio League of Sidewalk Astronomers; No. 26, Mark Croom, Lifetime Member; No. 27, Gregory M. Brown, Member-at-Large; No. 28, William Clarke, Tucson

Amateur Astronomy Association; No. 29, Cliff Mygatt, Olympic Astronomical Society; No. 30, David Jenkins, Member-at-Large

Binocular Messier Award

No. 933, Michael Reuter, Smoky Mountain Astronomi-



cal Society; No. 934, Martin Dukeshire, Yakima Astronomical Society; No. 935, Preston Pendergraft, Member-at-Large; No. 936, Clyde Glandon, Astronomy Club of Tulsa; No. 937, Nina Chevalier, San Antonio League of Sidewalk Astronomers

Comet Award

No. 57, Dave Tosteson, Silver, Minnesota Astronomical Society; No. 58, Bryan R. Tobias, Silver, San Antonio League of Sidewalk Astronomers

Deep Sky Binocular Award

No. 325, Denise Terpstra, Member-at-Large; No. 326, Jim Kvasnicka, Prairie Astronomy Club

Globular Cluster Award

No. 205, Keith Kleinstick, Member-at-Large; No. 206, Mark E. Florian, Austin Astronomical Society

Herschel 400 Award

No. 472 Stephen Bosbach, Austin Astronomical Soc.; No. 473 Dr. John Huntsberger, Austin Astronomical Society; No. 474 Anthony Recascino, Member-at-Large; No. 475 Dr. Allen Gilchrist, Big Bend Astronomers; No. 476 John Kutney, Astronomical Society of Las Cruces

Lunar Observing Award

No. 760, Gerard Jones, Minnesota Astronomical Society; No. 761, Emory Horvath, Member-at-Large; No. 762, Jerry Kornegay, Smoky Mountain Astronomical Society; No. 763, J. Scott Northcutt, Von Braun Astronomical Society; No. 764, Michael Stephens, Member-at-Large; No. 765, Martin Dukeshire, Yakima Astronomical Society; No. 766, Dr. Phil Schmidt, Austin Astronomical Society; No. 767, Nina Chevalier, San Antonio League of Sidewalk Astronomers; No. 768, Lloyd Lashbrook, Texas Astronomical Society of Dallas; No. 769, Fred Davis, Roanoke Valley Astronomical Society; No. 770, Neil Perlin, Member-at-Large

Lunar II Award

No. 43, John Schaefer, Boise Astronomical Society

Messier Award

No. 0291, Robert Anderson, Honorary, Member-at-Large; No. 2469, Steve King, Honorary, Astronomical Society of Kansas City; No. 2558, Stanley J Spielbusch, Honorary, Phoenix Astronomical Society; No. 2562, Phillip Hall, Honorary, Member-at-Large; No. 2577, Rod Poynter, Honorary, San Antonio League of Sidewalk Astronomers; No. 2578, Ken Scott, Honorary, Springfield Astronomical Society; No. 2579, Michael Stephens, Regular, Member-at-Large; No. 2580, Cindy Krach, Honorary, Haleakala Amateur Astronomers; No. 2581, Mike Fowler, Regular, Atlanta Astronomy Club; No. 2582, Steve Emert, Honorary, Minnesota Astronomical Society; No. 2583, Ken Hugill, Honorary, Minnesota Astronomical Society; No. 2584, Emory Horvath, Regular, Member-at-Large; No. 2585, Keith Kleinstick, Honorary, Member-at-Large

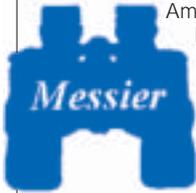
Meteor Award

Observer No. 147, Trevor McGuire, 30 hours, Baton Rouge Astronomical Society; Observer No. 152, Dave Tosteson, 6 hours, Minnesota Astronomical Society

Outreach Club Award

Note: Last digit in the number is letter indicator (O for Basic Outreach) (S for Stellar) (M for Master) Last column is pin level achieved.

No. 0052-S, Scott Kranz, Astronomical Society of Kansas City; No. 0069-M, Joanne L. Hailey, Des Moines Astronomical Society, Inc.; No. 0070-M, James L. Twellman, Astronomical Society of Eastern Missouri; No. 0071, Michael Overacker, Star City Astronomy Network; No. 0149-M, Jeff Hoffmeister, Olympic Astronomical Society; No. 0239-S, Tom Moore, Flint River Astronomy Club; No. 0243-M, Dr. William Warren, Flir+ River Astronomy Club; No. 0256-M, Lee Green, Twin Cities Amateur Astronomers; No. 0259-S, Bob Vickers, West Kentucky Amateur Astronomers; No. 0269-S, Dwight Harness, Flint River Astronomy Club; No. 0284-M, Rick Allnutt, San Antonio Astronomical Association; No. 0299-S, Kelley Miller, Texas Astronomical Society of Dallas; No. 0340-S, Janean L. Shane, Omaha Astronomical Society; No. 0356-M, Rod Williams, Des Moines Astronomical Society, Inc.; No. 0366-M, Stephen Bieger, Atlanta Astronomy Club; No. 0393-S, Bradford Leonard, Texas Astronomical



HEART OF AMERICA STAR PARTY October 11-14, 2012

On the **Dark Sky Site** developed for and by amateur astronomers:

- ~ Located for excellent observing on 40 acres in a rural setting developed just for astronomers.
- ~ Situated for nearby amenities and activities



* 75 miles south, away from Kansas City lights
* Nearly 6.7 limiting magnitude (based on SQM-L averages)

- > Wide area has plenty of room for tents, trailers, RVs
- > Electricity for astronomical equipment (first come, first serve)
- > Portapotties & showers on site (Please bring your own drinking water)

For details: www.hoasp.org
or, star party chair, Joe Wright:
jos.wright@yahoo.com

- ~ 15 miles from Butler, MO for hotels, restaurants, etc.
- ~ Bates County Museum of Pioneer History, in Butler
- ~ Nearby Civil War battle site: Mine Creek Museum

Pre-registration ends Sept. 19—see website for details.

PRESENTED BY THE ASTRONOMICAL SOCIETY OF KANSAS CITY

Society of Dallas; No. 0395-S, David H. Bender, Boulder Astronomical and Space Society; No. 0398-S, Alex McConahay, RTMC, Inc; No. 0416-M, Dr. Phil Schmidt, Austin Astronomical Society; No. 0419-S, Steven Fitzsimmons, Cincinnati Astronomical Society; No. 0420-O, Doug Maxwell, Flint River Astronomy Club; No. 0421-O, Mike Stuart, Flint River Astronomy Club; No. 0422-O, Steve Boerner, Astronomical Society of Eastern Missouri; No. 0423-O, Chuck Simms, Astronomical Society of Eastern Missouri; No. 0424-O, Grant Martin, Saint Louis Astronomical Society; No. 0425-O, Roger Brackett, Flint River Astronomical Society; No. 0426-O, Russell P. Hills, Shoreline Amateur Astronomical Association; No. 0427-O, Francisco J. Roldan, Shoreline Amateur Astronomical Association; No. 0428-O, Jim Reier, Shoreline Amateur Astronomical Association; No. 0429-O, George Miller, Shoreline Amateur Astronomical Association; No. 0430-O, Larry Logsdon, Shoreline Amateur Astronomical Association; No. 0431-O, Lester J. Anderson, Temecula Valley Astronomers; No. 0432-O, Mark Dove, Atlanta Astronomy Club; No. 0433-M, Bruce P. Bookout, Colorado Springs Astronomical Society; No. 0434-O, Kristine Larsen, Springfield Telescope Makers; No. 0435-S, Dawn Davies, Austin Astronomical Society; No. 0436-O, Dick Francini, Neville Public Museum Astronomical Society; No. 0437-M, Lloyd Watkins, Cumberland Astronomical Society; No. 0438-O, Andre Cruz, Northeast Florida Astronomical Society; No. 0439-S, Dr. Stephen M. Schiff, Astronomical Society of the Palm Beaches; No. 0440-O, Jim Ketchum, Astronomical Society of Kansas City; No. 0441-O, Cindy Kranz, Astronomical Society of Kansas City; No. 0442-O, Gary Bell, Northwest Suburban Astronomers; No. 0443-O, Cal Powell, Northern Virginia Astronomy Club; No. 0292-S, Gregory F. Rohde, Rose City Astronomers

Planetary Nebula Program Award

No. 47, Jim Jackson, Advanced Award, Manual, Eugene Astronomical Society; No. 48, Jnani Cevvel, Advanced Award, Member-at-Large

Southern Binocular Award

No. 77, Vincent R Scheetz, Delaware Valley Amateur Astronomers

Southern Skies Telescopic Program Award

No. 36, Bryan R Tobias, San Antonio Sidewalk Astronomers

Sunspotter Award

No. 123, Mark Bagdy, Estes Valley Astronomical Society; No. 124, Bob Hoover, Huachuca Astronomy Club; No. 125, Phil Kostelac, Olympic Astronomical Society; No. 126, Robert Anderson, Member-at-Large; No. 127, John H McCammon, Member-at-Large; No. 128, Jim Twellman, Astronomical Society of Eastern Missouri

Urban Observing Program Award

#140, Richard Allnutt, Miami Valley Astronomical Society

Universe Sampler Award

No. 107, Lauren Rogers, Telescope, Austin Astronomical Society

Variable Star Award

No. 10, Roger Kolman Naperville Astronomical Association; No. 11, Mike Simonsen, Member-at-Large; No. 12, Barry B. Beaman, Rockford Amateur Astronomers; No. 13, Douglas L. Smith, Tuscon Amateur Astronomers Association; No. 14, Douglas M. Slauson, Cedar Amateur Astronomers

Variable Star Program Requirement Change

AAVSO needs more visual observations of Variable Stars like this program requires. In an effort to attract more people to earn the award and make Variable Stars part of their

regular observing program, the requirements have been reduced to 100 observations of at least 15 Mira type, semiregular, or cataclysmic stars and observing one Mira type through a complete cycle. Few programs offer an opportunity for the Amateur with modest or no equipment to contribute to science like this one.

Go to the Astro League program requirements and www.aavso.org to learn more about the program and observing Variable Stars.
Robert Togni, AL Variable Star Program Coordinator

Mid East Region
in conjunction with the
★ Mason Dixon Star Party ★
ANNUAL MEETING
1:00 PM SATURDAY JULY 21
**Nominations are open
for MERAL offices**
*Here is your chance to give back to the
hobby that has given so much to you!*
Astronomical League

Star parties are for you!

If you haven't ever been to a star party, check out the list on page 18 of this issue of **Reflector** and pick one that is close to you. Before you go, here is a sampling of what you can do there:

- Visit vendor booths to see first hand the equipment you want
- Look for a new scope. See the full variety surrounding you
- Discover something. Take in a talk given by those who enjoy the subject
- Observe something new. You're surrounded by those who have been there already
- Meet like minded-people with whom you can talk shop
- Learn about other clubs and how they do things

Are these reasons enough for you? Well, here's one more: Experience the great camaraderie you'll find among people who enjoy what the sky offers. Star parties are made for amateur astronomers. They are made for you.



2012
Okie-Tex
Star Party
Sept 8- Sept 16, 2012
Kenton, OK
www.Okie-Tex.com

MASON DIXON STAR PARTY
JULY 18-22, 2012
www.masondixonstarparty.org
Wellsville, Pennsylvania
Speakers-Raffles
Workshops-Vendors
Food-Hot showers
MERAL Annual Meeting
Sponsored by The York County Astronomical Society
A fantastic flat horizon for observing and camping



To have your star party or event listed, please send the details including dates, sponsors, web site, to: astrowagon@verizon.net.

June 8 - 9

42nd Annual Apollo Rendezvous
The Boonshoft Museum of Discovery
And John Bryan Observatory, Dayton, Ohio
www.mvas.org

June 13 - 16

26th Annual Rocky Mountain Star Stare (RMSS)
Colorado Springs Astronomical Society,
Gardner, Colorado; www.rmss.org

June 14 - 17

Cherry Springs Star Party
Cherry Springs State Park, Pennsylvania
www.cherrysprings.org

June 16 - 23

2012 Grand Canyon Star Party
South Rim - Tucson Amateur Astronomy Assoc.
North Rim - Saguaro Astronomy Club of Phoenix
www.nps.gov/grca/planyourvisit/grand-canyon-star-party.htm

Minnesota Astronomical Society
5th Annual Presents
Camping with the Stars
WHERE: Onan Observatory at Baylor Park
Norwood-Young America, MN
WHEN: July 20, 21, & 22, 2012

Speakers, prizes, and viewing through the 14", 16" and 20" telescopes. Tent camping and camper sites available.
Visit our website: www.mnastro.org/campwithstars/
Call 952-466-5250 to register and reserve your spot.

The Minnesota Astronomical Society presents:
NORTHERN NIGHTS STAR FEST
When: August 15, 16, 17 & 18, 2012
Where: Long Lake Conservation Center
Palisade, MN

Join avid amateur astronomers and dark sky enthusiasts for our 4th annual Northern Nights Star Fest. Enjoy some of the darkest skies in Minnesota and view thru 25" and 30" Obsession scopes.
Onsite accommodations. Guest speakers, swap meet, and door prizes are some of the scheduled events. Meals also available.
Registration information at www.mnastro.org/NNSF

June 20 - 23

Green Bank Star Quest 9
Green Bank National Radio
Observatory, West Virginia
www.greenbankstarquest.org

June 21 - 23

Mt. Bachelor Star Party
Brothers, Oregon; www.mbsp.org

July 4 - 7

Astronomical League Convention/Astrofest
Chicago, Illinois; www.alcon2012.astroleague.org

July 15 - 20

Nebraska Star Party
Merritt Reservoir; Valentine, Nebraska
www.nebraskastarparty.org

July 15 - 21

Southern Skies Star Party
Lake Titicaca, Bolivia; www.sssp.org

July 18 - 22

Mason Dixon Star Party
Private Footlight Ranch, Wellsville, Pennsylvania
www.masondixonstarparty.org

July 18 - 22

Golden State Star Party
Frosty Acres Ranch, Adin, California
www.goldenstatestarparty.org

July 19 - 22

Wisconsin Observers Weekend
Hartman Creek State Park; Waupaca, Wisconsin
www.new-star.org

July 19 - 21

Table Mountain Star Party
Table Mountain, Lion Rock
Ellensburg, Washington; www.tmspa.com

July 19 - 22

Indiana Family Star Party
Camp Cullom, Frankfort, Indiana
www.home.comcast.net/~jmmahony1/PGO

July 20 - 21

Connecticut River Valley Astronomers Conjunction
Northfield Mountain Recreation and
Environmental Center, Maine
www.philharrington.net/astroconjunction/

August 10 - 12

Maine Star Party
Downeast Amateur Astronomers
Cobscook Bay State Park, Edmunds, Maine
www.downeastaa.com

August 14 - 19

Oregon Star Party
Ochoco National Forest. Prineville, Oregon
www.oregonstarparty.org

August 16 - 18

22nd Annual Weekend Under the Stars
Foxpark, Wyoming
www.home.bresnan.net/~curranm/wuts.html

August 16 - 19

Earth, Wind, and Sky Star Party
Barry, IL; www.freewebs.com/earthwindandsky

August 16 - 19

Stellafane
Breezy Hill, Springfield, Vermont
www.stellafane.org/stellafane-main/convention

August 16 - 19

Julian Starfest
Menghini Winery, Julian, California
www.julianstarfest.com

August 17 - 21

Almost Heaven Star Party
Spruce Knob, West Virginia; www.ahsp.org

August 17 - 19

Hidden Hollow Star Party
Hidden Hollow, Mansfield, Ohio
www.wro.org/hiddenhollowinfo.html

August 17 - 19

25th Annual Northwoods Starfest
Chippewa Valley Astronomical Society
Fall Creek, Wisconsin; www.cvastro.org

August 17 - 19

AstroBlast Star Party
Oil City, Pennsylvania; www.oras.org

September 8 - 16

Okie-Tex Star Party
Kenton, Oklahoma
Oklahoma City Astronomy Club
www.okie-tex.com

September 13 - 15

Mt. Bachelor Star Party
Sunriver Nature Center and Observatory, Oregon
www.mbsp.org

September 13 - 16

Great Lakes Star Gaze
Gladwin, Michigan
www.greatlakesstargaze.com

September 13 - 16

Prairie Skies Star Party
Bourbonnais, Illinois; www.prairieskies.org

September 14 - 16

Idaho Star Party
Bruneau State Park, Idaho
www.isp.boiseastro.org

September 14 - 16

Black Forest Star Party
Cherry Springs State Park, Pennsylvania
www.bfsp.org/starparty/index.cfm

September 15

Virginia Assoc. of Astronomical Societies (VAAS)
Richmond Astronomical Society
www.richastro.org

September 21 - 22

Astronomy at the Beach
Kensington Metropark, Brighton, Michigan
www.personal.umich.edu/~dgs/kensington

October 10 - 14

Heart of America Star Party
Astronomical Society of Kansas City
Butler, Missouri
www.askc.org/HOASP

Astronomical League Membership-at-Large Program

What does the League offer you as Members-at-Large?

- Full voting privileges at AL meetings.
- A subscription to the *Reflector*.
- Book Service offering astronomy-related books at a 10 percent discount.
- Optional subscriptions at discounted rates to the following publications:
Astronomy Magazine \$34.00; 2 years \$60 • *Sky & Telescope Magazine* \$32.95
RASC Observers Handbook \$24.00 • *StarDate* \$19.50
(Foreign rates are higher; see website)
- Free Astronomical League Observing guide with membership.

To join the Astronomical League as a Member-at-Large, send a check for \$30.00, \$45.00 foreign, made payable to the Astronomical League, to:
Astronomical League National Office, 9201 Ward Parkway, #100, Kansas City, MO 64114
Phone: 816-333-7759; Email: leagueoffice@astroleague.org
Or join online at: WWW.ASTROLEAGUE.ORG

League Sales are online!

The League's online Store is available at the Web site, www.astroleague.org. Click on the link on the left side of the home page. The online store includes the latest shopping cart technology and accepts credit cards. Shipping & handling (S&H) is calculated at checkout. Merchandise is also available by mail order, payable by check. Please select your items, add the applicable S&H fee, and mail your order to:

Astronomical League Sales
9201 Ward Parkway, Suite 100
Kansas City, MO 64114

If you have questions about the merchandise, or discounts on bulk orders, please call the League office, 816-DEEP-SKY, or email leaguesales@astroleague.org.

Astronomical League travel mug and coffee mug

\$10: travel mug plus \$1.50 S&H
\$8: coffee mug plus \$1.20 S&H



Astronomical League lapel pin (one-inch diameter)

\$8 plus \$1.20 S&H



David Levy's "Guide to the Stars" 16" Planisphere

\$21 plus \$3.15 S&H



Astronomical League cloth patch (three-inch diameter)

\$7 plus \$1.05 S&H



Carbon Stars

A guide to the Carbon Star Observing Club
\$10 plus \$1.50 S&H



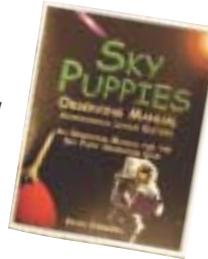
Globular Clusters
\$13 plus \$1.95 S&H



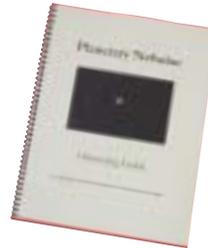
Seasonal Star Chart
\$24 plus \$3.60 S&H



Sky Puppies Observing Manual
For the Sky Puppy Observers Club
Regularly \$15, **Sale price \$8** plus \$2.25 S&H



Planetary Nebulae
\$14 plus \$2.10 S&H



Messier Objects: A Beginner's Guide
\$8 plus \$1.20 S&H



Observe Eclipses
Regularly \$18, **Sale price \$9** plus \$2.70 S&H



Universe Sampler
\$10 plus \$1.50 S&H



Galaxy Groups and Clusters
\$18 plus \$2.70 S&H



Local Galaxy Group and Galactic Neighborhood
\$21 plus \$3.15 S&H



Handbook for Astronomy Educators—A Course Planning Guide
Regularly \$12, **Sale price \$4** plus \$1.80 S&H



Observe the Herschel Objects
Regularly \$8, **Sale price \$4** plus \$1.20 S&H



Math for Amateur Astronomers
\$10 plus \$1.50 S&H



Jupiter Observer's Handbook
\$10 plus \$1.50 S&H



The A.L.P.O. Guide to Watching Meteors
\$3 plus \$1 S&H

