



# the Skyscraper

vol. 40 no. 4

April 2013

AMATEUR ASTRONOMICAL SOCIETY OF RHODE ISLAND \* 47 PEEPTOAD ROAD \* NORTH SCITUATE, RHODE ISLAND 02857 \* WWW.THESKYSCRAPERS.ORG

## In this issue

- 2 President's Message
- 3 Double Stars for Late Winter/Early Spring
- 4 April Lyrids Meteor Shower and Last Decent Views of Jupiter
- 5 Planetarium at the University of Rhode Island
- 6 Spiral Galaxy in Ursa Major M101
- 6 Double Stars for 8-inch Clark
- 7 Astronomy Outreach at Greenville Public Library
- 7 Budget Worksheet 2013-2014
- 9 Your Daily Dose of Astonishment
- 10 Comet C/2011 L4 PanSTARRS Photo Gallery
- 14 Secretary
- 14 Upcoming Meetings
- 15 Treasurer
- 16 Imaging through the Alvan Clark

Friday, April 5, 6:30pm at Seagrave Memorial Observatory

## Double Stars are Twice the Fun & Double Star Challenge

by Glenn Chaple

I hope you will attend our April meeting. Glenn Chaple, a columnist for Astronomy Magazine, will be introducing us to the joy of observing double stars. After his talk, members are encouraged to set up their telescopes for a "Double Star Challenge", and we can have some fun improving our observing skills, and testing the optical limits of various telescopes, as we hunt down doubles from a list that Mr. Chaple has provided us. Please print a copy of this list, and be sure to bring along some star charts and a red flashlight.

Many of us believe that our 8" Clark

**Glenn Chaple** has been an avid amateur astronomer since the summer of 1963 when a high school friend showed him Saturn and the double star Mizar with a small reflecting telescope. The interest led him 6 years later to a bachelor's degree in astronomy from the University of Massachusetts in Amherst. A 3-year stint at the Alice G. Wallace Planetarium in Fitchburg, Massachusetts, was followed by more than 30 years as a secondary school science teacher.

Chaple has spent many thousands of hours exploring the night sky with a variety of telescopes. For many years, his standby was a 3-inch reflecting telescope with which he saw all of the Messier objects, more than 100 asteroids, and 1,500 double and multiple stars. His fascination with double stars led to his first astronomical writings, penning a column on double stars for Deep Sky magazine, edited by none other than current Astronomy Editor David J. Eichler. In addition to Deep Sky, Glenn also wrote the "What's Up" column for the children's as-

telescope to have some of the finest optics to be found. Let's see how well the Clark performs compared to other telescopes. Perhaps someone's telescope has even better optics?

So plan on spending this enjoyable spring evening at Seagrave Observatory. The spring peepers will be singing in the pond next door, and we'll have a great time observing together. We will be sure to have hot beverages and snacks available.

The "Double Star Challenge" will begin immediately after our April meeting, around 9pm.

tronomy magazine Odyssey, and has written the "Observing Basics" column for Astronomy since 2002. He is co-author with Terence Dickinson and Victor Costanzo of the Edmund Scientific Mag 6 Atlas and author of the book Exploring With a Telescope.

In 1980, Chaple joined the American Association of Variable Star Observers. Since then, he has made over 75,000 variable star estimates. Although he pursues variable stars with anything from the unaided eye to binoculars to a small rich-field telescope, his primary variable star tool is a vintage 13-inch Dobsonian-mounted reflector.

Besides astronomy, Glenn enjoys distance running ("My marathon days are long over — it's 5K road races now!"), playing baseball in an over-40 fast-pitch league, and fishing. He lives in north central Massachusetts with his wife, Regina, and is the proud parent of two grown sons and "grampy" to two future astronomers, Katie and Sam. He is a lifelong Red Sox fan.





# President's Message

Ed Haskell

At the March meeting I introduced high school senior Caitlin Wilson who has adopted astronomy as the topic for her Senior Project. I read from her project proposal and asked help from the membership in providing time and material assistance to Caitlin in her endeavor. I am happy to report that Skyscrapers has risen to the challenge and a number of members are providing components from their 'spare parts boxes' and that Bob Horton has agreed to mentor Caitlin in her project. As this help came forward Caitlin wrote the following to me:

*Good Afternoon Mr. Haskell,*

*I met with Bob on Tuesday, and had a tour of the Ladd Observatory and even had the chance to use the telescope to see Jupiter! Thank you so much for all of your help the past few days. I really appreciate everything you, and all of Skyscrapers, have done for me. I hope to see you all soon!*

*Thanks,  
Caitlin Wilson*

Caitlin is a very impressive young woman and it is a pleasure for us to be able to help her in these academic pursuits.

Without doubt this assistance was rendered for the best of reasons and exemplifies the willingness of Skyscrapers' Members to help educate the public on matters astronomical wherever and whenever needed. However there is a direct benefit to Skyscrapers from the educational initiatives we undertake of which you may be unaware.

Some years ago Skyscrapers was con-

fronted with property tax bills from the Town of Scituate which today would be about \$2,400 per year. Bob Napier appeared a number of times before appropriate committees of the Town and argued that our public observing and educational undertakings were of significant public value and would suffer severe damage if a small society such as ours had to try to raise that kind of money. Eventually the issue was won and we enjoy an abatement of all property taxes in recognition of our contribution to the public in general and to school children in particular.

Last month I wrote of the positive impact on our budget of public viewing sessions. This seems a good opportunity to review the impact of this tax abatement that results solely due to our educational outreach efforts.

The tax bill approximates thirty percent of our annual budget. If we had to include funds to pay the taxes that have been abated then we would have to raise dues by nearly \$25.00 per member if spread equally across the member classes. Put in context that would result in a dues increase of 50% for Regular Members and a proportionately larger percent for most other member classes (since their present dues are lower than Regular Membership).

Once in a while I hear from two or three members who grumble that we devote too much time to public outreach and education and who believe those resources could be better spent elsewhere. Since this is a very small percent of the membership I could just dismiss these complaints out of hand but instead the Board takes up the issue whenever raised and considers anew whether we are doing the right thing. Thus



The Skyscraper is published monthly by Skyscrapers, Inc. Meetings are held monthly, usually on the first or second Saturday of the month. Seagrave Memorial Observatory is open every Saturday night, weather permitting.

### President

Ed Haskell [haskell.ed@gmail.com](mailto:haskell.ed@gmail.com)

### 1st Vice President

Bob Horton [Robert\\_Horton@brown.edu](mailto:Robert_Horton@brown.edu)

### 2nd Vice President

Kathy Siok [ksiok@cox.net](mailto:ksiok@cox.net)

### Secretary

Tom Thibault [DeepSpaceViewer@aol.com](mailto:DeepSpaceViewer@aol.com)

### Treasurer

Lloyd Merrill [lloydmerrill@gmail.com](mailto:lloydmerrill@gmail.com)

### Members at Large

Jim Hendrickson [jim@distantgalaxy.com](mailto:jim@distantgalaxy.com)

Bob Napier [bob\\_napier@hotmail.com](mailto:bob_napier@hotmail.com)

### Trustees

Pat Landers [pbl64@comcast.net](mailto:pbl64@comcast.net)

Steve Siok [ssiok@cox.net](mailto:ssiok@cox.net)

Conrad Cardano [cardanoc@verizon.net](mailto:cardanoc@verizon.net)

### Outreach Coordinators

Conrad Cardano [cardanoc@verizon.net](mailto:cardanoc@verizon.net)

Bob Forgiel [bforgiel@cox.net](mailto:bforgiel@cox.net)

### Librarian

Alex Bergemann [astroalex@verizon.net](mailto:astroalex@verizon.net)

### Historian

Dave Huestis [dhuestis@aol.com](mailto:dhuestis@aol.com)

### Editor

Jim Hendrickson [jim@distantgalaxy.com](mailto:jim@distantgalaxy.com)

### Directions

Directions to Seagrave Memorial Observatory are located on the back page of this newsletter.

### Submissions

Submissions to The Skyscraper are always welcome. Please submit items for the newsletter no later than **April 19** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to [jim@distantgalaxy.com](mailto:jim@distantgalaxy.com).

### E-mail subscriptions

To receive The Skyscraper by e-mail, send e-mail with your name and address to [jim@distantgalaxy.com](mailto:jim@distantgalaxy.com). Note that you will no longer receive the newsletter by postal mail.

Seagrave Memorial Observatory Open Nights

Saturdays at 8:00 pm  
Summer hours begin on April 20  
with opening time at 9:00 pm  
weather permitting



far the analysis has come down on the side of no change. I suspect that will continue to be the case, but the right thing is for those to whom you have entrusted the management of the Society to review old practices and policies and update them when the situation is called for.

Since I am writing about budgetary concerns I should point out that the proposed 2013-2014 Budget is included in this issue of The Skyscraper. Your questions are welcomed at any time.

I mentioned last month that my review of the Budget was stimulating a deeper look into a number of related matters. One

of these is the preservation of the Society's assets. Financial assets are primarily the concern of the Board of Directors, real and personal property are primarily the concern of the Board of Trustees, but inevitably the lines may blur slightly. *I want to be absolutely clear that I have no present concern about the safety or dissipation of any of the Society's assets.* I do, however, believe that good management reviews periodically its controls to assure that assets are protected in the routine course of operations. To that end I have requested that the Treasurer and the Senior Trustee review their asset control policies and report, at a joint meeting of the

two Boards, their degree of satisfaction and how that protection is accomplished. I expect nothing surprising to be reported, this is just good management practice.

The 2012-2013 term is drawing to a close and it is fitting that I thank the membership for the support and encouragement I and the other officers and board members and the Trustees have received over the past twelve months. It takes a lot of effort to carry on the work of the Society but I think it is true that all of us consider it a labor of love.

Ed Haskell President



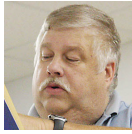
## Double Star Challenge

# Double Stars for Late Winter/Early Spring

Glenn Chaple

Star	Coordinates	Mags	Sep	P.A.	Year	Notes
12 Lyn	06 <sup>h</sup> 46.2 <sup>m</sup> +59°27'	AB 5.4, 6.0	1.9"	74°	2004	neat triple; 3-inch challenge
		AC 5.4, 7.0	8.7"	309°	2004	
α Gem	07 <sup>h</sup> 34.6 <sup>m</sup> +31°53'	AB 1.9, 3.0	5.0"	54°	2013C*	Castor; AB binary (P=445y)
ζ Cnc	08 <sup>h</sup> 12.2 <sup>m</sup> +17°39'	AB 5.3, 6.3	1.1"	25°	2013C	AB-C a 6-inch challenge
		AB-C 5.1, 6.2	5.9"	72°	2004	
ι Cnc	08 <sup>h</sup> 46.7 <sup>m</sup> +28°46'	4.1, 6.0	30.7"	308°	2003	striking blue and yellow colors
ε Hya	08 <sup>h</sup> 46.8 <sup>m</sup> +06°25'	AB-C 3.5, 6.7	3.0"	299°	2004	4.25-inch challenge
ι <sup>2</sup> (57) Cnc	08 <sup>h</sup> 54.2 <sup>m</sup> +30°35'	6.1, 6.4	1.5"	311°	2004	3-inch challenge
38 Lyn	09 <sup>h</sup> 18.8 <sup>m</sup> +36°48'	3.9, 6.1	2.6"	226°	2004	
α Leo	10 <sup>h</sup> 08.4 <sup>m</sup> +11°58'	1.4, 8.2	176.0"	308°	2000	pendulum effect?
γ Leo	10 <sup>h</sup> 20.0 <sup>m</sup> +19°50'	2.4, 3.6	4.6"	127°	2004	both golden yellow
49 Leo	10 <sup>h</sup> 35.0 <sup>m</sup> +08°39'	5.8, 7.9	2.1"	157°	2004	4.25-inch challenge
54 Leo	10 <sup>h</sup> 55.6 <sup>m</sup> +24°45'	4.5, 6.3	6.3"	111°	2003	
ξ UMa	11 <sup>h</sup> 18.2 <sup>m</sup> +31°32'	4.3, 4.8	1.7"	180°	2013C	binary (P=60y)
ι Leo	11 <sup>h</sup> 23.9 <sup>m</sup> +10°32'	4.1, 6.7	2.2"	92°	2013C	6-inch challenge
Wnc 4 UMa	12 <sup>h</sup> 22.4 <sup>m</sup> +58°05'	9.0, 9.3	49.2"	77°	2004	aka Messier 40!
24 Com	12 <sup>h</sup> 35.1 <sup>m</sup> +18°23'	5.1, 6.3	20.1"	270°	2004	optical; yellow and blue
γ Vir	12 <sup>h</sup> 41.7 <sup>m</sup> -01°27'	3.5, 3.5	1.9"	12°	2013C	Porrima; binary (P=169y)
α CVn	12 <sup>h</sup> 56.0 <sup>m</sup> +38°19'	2.9, 5.5	19.3"	229°	2004	Cor Caroli; showcase pair
ζ UMa	13 <sup>h</sup> 23.9 <sup>m</sup> +54°56'	2.2, 3.9	14.3"	153°	2003	Showpiece double; forms naked eye pair with Alcor
ε Boo	14 <sup>h</sup> 45.0 <sup>m</sup> +27°04'	2.6, 4.8	2.9"	343°	2004	Izar; 3-inch challenge yellow and blue
ξ Boo	14 <sup>h</sup> 51.4 <sup>m</sup> +19°06'	4.8, 7.0	6.3"	315°	2004	nice red and yellow colors
44 Boo	15 <sup>h</sup> 03.8 <sup>m</sup> +47°39'	5.2, 6.1	1.4"	63°	2012	4.25-inch challenge
μ Boo	15 <sup>h</sup> 24.5 <sup>m</sup> +37°23'	AB 4.3, 7.1	107.1"	170°	2002	BC 3-inch challenge
		BC 7.1, 7.6	2.2"	8°	2004	

\*Calculated



# April Lyrids Meteor Shower and Last Decent Views of Jupiter

Dave Huestis

For those of us who reside in the northern hemisphere, the spring season provides only one decent meteor shower to watch shooting stars streak across the sky. While not as productive as the August Perseids or the December Geminids, the annual Lyrids meteor shower's usually mediocre numbers can occasionally be enhanced.

There has been an increased interest in meteors since our close encounter with Asteroid 2012 DA14 on February 15, and the air burst of a 56-foot, 22-million pound meteor over Russia on the same day. While we don't expect to witness such events during the Lyrids display, it will be enjoyable to get outside finally to observe with no snow on the ground and the temperature well above freezing. Let's take a look at the viewing circumstances for this year's April Lyrids meteor shower.

The peak of the display will be on the morning of April 22, between midnight and dawn's early light. Normally that would be the optimum time to see 15 to 20 Lyrid meteors per hour at best advantage. Unfortunately a waxing gibbous Moon only three days before Full will severely brighten the sky, definitely reducing the number of meteors that can be observed. It will set around 3:51 am EDT for southern New England observers, leaving only approximately one hour or so of dark sky before morning twilight begins.

The only saving grace is that the radiant point for the April Lyrids lies on the Lyra-Hercules border, near the bright star Vega. It will be high in the eastern sky while the Moon will be in the western sky. To maximize your chances of seeing as many meteors as possible, the best defense will be to at least block the Moon's direct light with some trees or a building if possible.

The Lyrids are very fast meteors, slamming into the Earth's atmosphere at a moderate speed of 29.8 miles per second. And for that reason about one-quarter of the meteors leave luminous trains of dust that can be observed for several seconds. The Lyrids are a fairly narrow stream of particles, so don't expect many to be seen before or after peak day.

Unfortunately Rhode Island's observatories did not have many open nights for observing throughout the winter months

due to cloudy, snowy or rainy weather. It is most likely you haven't had an opportunity to get a good look at Jupiter through some of the fine telescopes at these facilities. Well, if April skies are clear you better make an effort to observe Jupiter before this giant world moves too low near the western horizon to be seen. You definitely have the entire month of April to accomplish this task. Jupiter and the Moon will be two degrees apart on the 14th. And depending upon the horizons at the local observatories, you may even be able to catch a glimpse of Jupiter until about mid-May.



Jupiter imaged through the 8-inch Alvan Clark telescope on March 23 by Steve Hubbard using an AS120M camera. See more images from this session on page 16.

But don't worry. Even before Jupiter becomes unobservable with our telescopes, the sky gods will smile down upon us and Saturn will become visible in the eastern sky for our viewing pleasure. On April 1 this beautiful ringed world will rise around 9:19 pm EDT. However, it may be an hour or more before Saturn climbs high enough to be observed, depending upon obstacles like trees and buildings at each observing location. The observing window will get better as the month of April progresses. On May 1, while Jupiter is descending towards the western horizon, Saturn will be ascending the celestial sphere to the east. I'll write about observing Saturn in a future column.

However, to whet your appetite I'll note that Saturn's rings are now tilted at an angle of 18 degrees, providing a splendid view of the northern face of the rings. The image that will greet your eye through a telescope will be simply amazing.

Cross your fingers, arms, legs and eyes that the stormy weather will be behind us as we usher in April. Just remember to uncross your eyes before you get to the telescope eyepiece!

Also, check out the three-day-old crescent Moon between the Pleiades and Hyades star clusters in Taurus on April 13th.

All the local observatories provide magnificent views of Jupiter and Saturn. Please check each of the websites for start times, as they change not only due to later sunset times, but also due to the observance of Daylight Saving Time which began on Sunday, March 10. Seagrave Observatory (<http://www.theskyscrapers.org>) on PeepToad Road in North Scituate is open every Saturday night, weather permitting of course. Ladd Observatory (<http://www.physics.brown.edu/physics/commonpages/ladd/>) located on Hope Street on Providence's East Side is open on any clear Tuesday night. And for those of you who are atypical Rhode Islanders, you can always make the journey down to Charlestown to visit Frosty Drew Observatory (<http://www.frostydrew.org/>) on any clear Friday night. For those typical natives, just be sure to pack your passport and an overnight bag!

Keep your eyes to the skies!

## Phases of the Moon

### Last Quarter Moon

April 3 04:37

### New Moon

April 10 09:35

### First Quarter Moon

April 18 12:31

### Full Moon

April 29 19:57

## SPACE PLACES IN RHODE ISLAND



### Planetarium at the University of Rhode Island

Francine Jackson

Nestled quietly on the corner of Upper College Road and Engineering Row is a unique little building resembling a silo stepped on by the Jolly Green Giant. Many students who pass by this building have no idea they are looking at one of the most modern planetariums in the area. The University of Rhode Island Planetarium, a part of the campus for decades, has within its doors the ability to travel through the solar system, and beyond.

Originally situated in front of the University's library, the planetarium was moved to its present location upon the library's expansion. It originally had what was then the "planetarium" of the people, as the instrument was named. The Spitz A projector, vintage 1940s, was the workhorse of the facility for decades; in the 1960s, a modern Viewlex projector was installed, but that actually had errors in its starball, and the Spitz was again called into action. It was replaced in the early 2000s by the projector normally used inside a Starlab inflatable planetarium, but then a Champlain grant allowed the purchase of the Evans & Sutherland Digistar3 projection system, a state-of-the-art programmable marvel which allows the University to not only perform live night-sky programs, but to create and purchase programs from similar facilities.

The building itself is totally different from the average planetarium. Walking into it, you are amazed at its size: 16 feet (5 meters), the diameter of a normal inflatable facility. But, it is totally carpeted, with seats that are much more comfortable than the average, as they are movable, not attached to the floor as a normal planetarium seat is, with backs that move to the audience's comfort level. For the general public, the size and almost living room feel make the program time almost like being home. Children enjoy the small size, as it isn't

overwhelming for them. All-in-all, every audience enjoys the time spent there.

The URI Planetarium offers programs for the Physics Department's Astronomy classes once a week; **it also has a public program, normally the second Friday of each month, a fund-raiser for both the URI Planetarium and Frosty Drew memorial funds.** In addition, the planetarium offers programs for audiences of all ages, by request. Would you like to come to a totally unique planetarium experience? If so, come on down!





## Spiral Galaxy in Ursa Major

# M101

Glenn Chaple

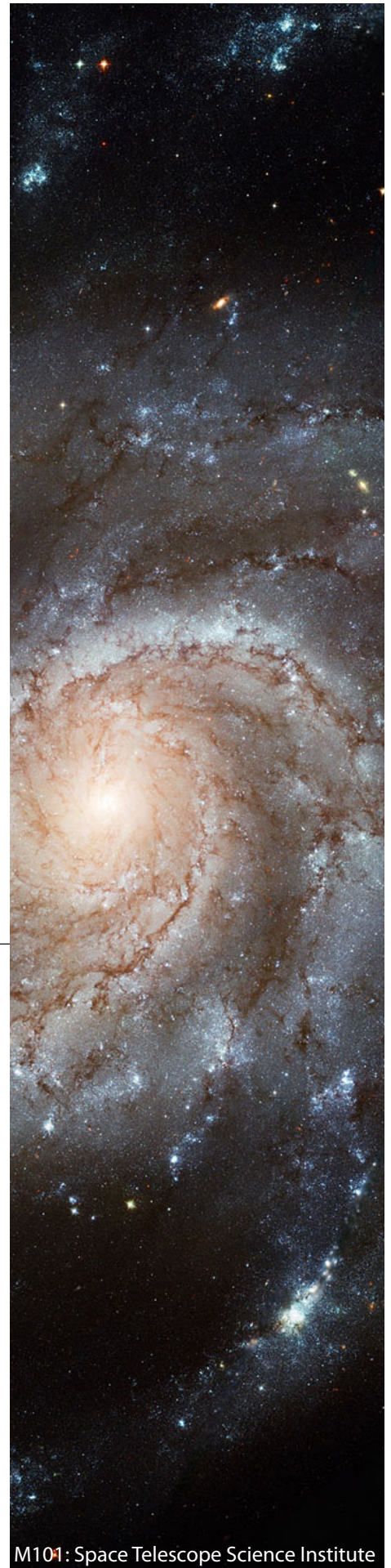
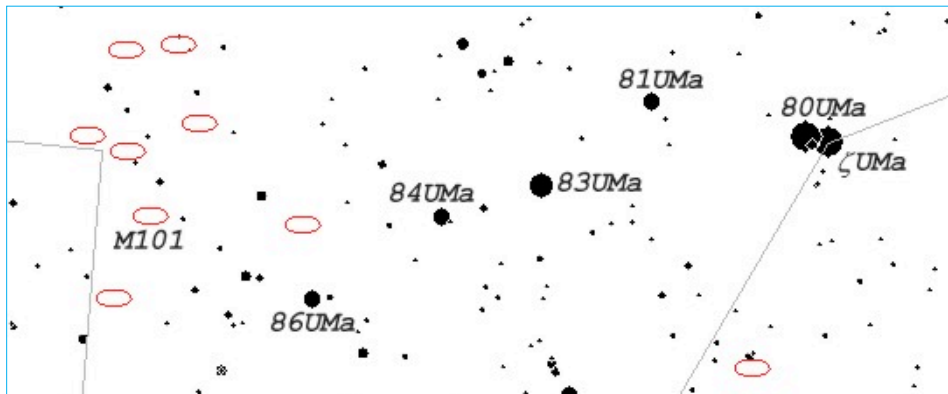
One of the best examples of a star-hop is the one that takes us from Mizar (the middle star in the Handle of the Big Dipper) to the face-on spiral galaxy M101. It's a fortuitous situation because, were it isolated, M101 might be one of the more difficult Messier objects to locate. M101 has a listed at magnitude of 7.9, but the light is spread over a roughly circular area just under one-half degree across. The situation mirrors that of M33, another elusive face-on spiral.

While there is no major star-hop path to M33, there is one to help us locate M101. Bridging the 5 degree gap between Mizar and M101 is a chain of stellar steppingstones made up of 81, 83, 84, and 86

Ursae Majoris. Mizar's naked eye partner Alcor (80 UMa) conveniently points the way from Mizar to 81 UMa, and from there you're on your way.

Viewed with small-aperture scopes, M101 is a diffuse circular glow about ¼ degree across. An 8-inch scope will begin to reveal traces of the spiral arms, while a large Dob will capture knots within the arms – H II regions and stellar associations bright enough to have their own NGC designations.

Four supernovae have been observed in M101 since 1900. The most recent reached 10th magnitude in September 2011. This is indeed a galaxy worthy of our attention.



M101: Space Telescope Science Institute

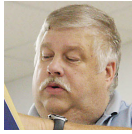


## Double Star Challenge

# Double Stars for 8-inch Clark

Glenn Chaple

Star	Coordinates	Mags	Sep	P.A.	Year
(WARM-UP)					
<b>γ Vir (STF 1670)</b>	12 <sup>h</sup> 41.7 <sup>m</sup> -01°27'	3.5+3.5	1.9"	12°	2013C
<b>ξ UMa (STF 1523)</b>	11 <sup>h</sup> 18.2 <sup>m</sup> +31°32'	4.3+4.8	1.7"	180°	2013C
<b>ζ Cnc</b>	08 <sup>h</sup> 12.2 <sup>m</sup> +17°39'	AB 5.3+6.3	1.1"	25°	2013C
<b>(STF 1196)</b>		AB-C 5.1+6.2	5.9"	72°	2004
(TESTS)					
<b>STF 13 Cep</b>	00 <sup>h</sup> 16.2 <sup>m</sup> +76°57'	7.0+7.1	0.9"	52°	2003
<b>STF 2 Cep</b>	00 <sup>h</sup> 09.3 <sup>m</sup> +79°43'	6.7+6.9	0.8"	19°	2003
<b>7 Tau (STF 412)</b>	03 <sup>h</sup> 34.4 <sup>m</sup> +24°28'	AB 6.6+6.9	0.7"	356°	2004
		AB-C 5.9+9.9	22.0"	55°	2004
<b>STF 1555 Leo</b>	11 <sup>h</sup> 36.3 <sup>m</sup> +27°47'	6.5+6.8	0.7"	150°	2004
<b>48 Vir (β 929)</b>	13 <sup>h</sup> 03.9 <sup>m</sup> -03°40'	7.1+7.7	0.6"	197°	2004
<b>ζ Boo (STF 1865)</b>	14 <sup>h</sup> 41.1 <sup>m</sup> +13°44'	4.5+4.6	0.4"	288°	2013C
<b>α CMa (Sirius) (AGC 1)</b>	06 <sup>h</sup> 45.2 <sup>m</sup> -16°43'	-1.5+8.5	10.0"	80°	2013C



# Astronomy Outreach at Greenville Public Library

Dave Huestis

A colleague of mine from Bryant, Sandi Brenner, and I do some very basic astronomy presentations every couple of months. We get mostly families and much older adults who don't know a heck of a lot about astronomy. We've been doing it for more than a year now. Unfortunately we haven't been able to use scopes outside due to the weather ... you know how it is!

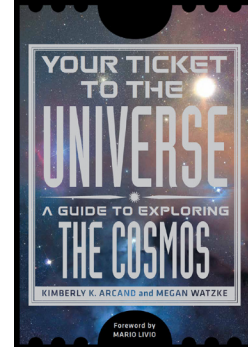
The programs started because the Head of Circulation, Rebecca Tremblay, started a program where the library lends out telescopes, just like they lend out books. There

is a fairly long waiting list to borrow one of three scopes.

We currently don't have a date for the next program, though when Kim does her book signing, depending upon the date and time, we may do a short program at the same time. Kim has already been asked about this and is in favor of the idea.

When I hear more I will let everyone know.

Here is a link to the telescopes lending program at the library: <http://www.yourlibrary.ws/Telescope%20Page.html>



**Kim Arcand book signing** will be on Saturday, May 18, from 11 am to 1 pm, at the Greenville Public Library.

Dave Huestis and Sandi Brenner will

be providing a solar observing program coinciding with the event.

See <http://www.yourlibrary.ws> for more details.



# Budget Worksheet 2013-2014

Ed Haskell

Expense Category	2012/13 Approved Budget	2012/13 Actuals	Variance	2013/14 Proposed Budget	Comments
AstroAssembly	-\$2,750.00	2,044.46	-\$705.54	\$2,650.00	No change to LYB. \$100 for porta john moved to Utilities
Cookout	-\$400.00	0.00	-\$400.00	\$0.00	Event replaced
Domain Name	-\$15.00	\$15.00	\$0.00	\$15.00	No change to LY.
Donations	-\$50.00	\$50.00	\$0.00	\$50.00	Clear Sky Chart, No change to LY.
Utilities (Heat, Power, Toilet, Internet)	-\$175.00	\$159.09	-\$15.91	\$1,275.00	Increase \$1,000.00 LY for Porta-John and Internet
Corporation renewal fee	-\$22.00	\$22.00	\$0.00	\$22.00	No change to LYB.
Postage	-\$225.00	\$54.80	-\$170.20	\$100.00	Decrease \$125.00 LYB, does not reflect Ballot Mailing
Presidential Fund	-\$150.00	\$0.00	-\$150.00	\$150.00	No change to LYB.
Printing	-\$83.00	\$0.00	-\$83.00	\$83.00	No change to LYB.
Propane	-\$100.00	\$80.25	-\$19.75	\$0.00	No change to LYB, but now included in Utilities
Property Insurance	-\$2,600.00	\$2,573.00	-\$27.00	\$2,600.00	No change to LYB.
Refreshments	-\$350.00	\$290.04	-\$59.96	\$350.00	No change to LYB.
Trustee Expense	-\$700.00	\$969.22	\$269.22	\$700.00	No change to LYB.
Property Maintenance Fund	-\$200.00	\$445.00	\$245.00	\$250.00	Increase \$25.00 LYB
Misc Other Expense	\$0.00	\$2.00	\$2.00	\$0.00	Increase \$25.00 LYB
Contingency	\$0.00	\$0.00	\$0.00	\$557.00	New Line Item to balance budget
<b>TOTAL</b>	<b>-\$7,820.00</b>	<b>\$6,704.86</b>	<b>-\$1,115.14</b>	<b>\$8,802.00</b>	<b>Increase \$982.00 LYB</b>
Income Category	2012/13 Approved Budget	2012/13 Actuals	Variance	2013/14 Proposed Budget	Comments
AstroAssembly	-\$3,500.00	\$3,722.00	\$222.00	\$3,722.00	No change to LYA
Cookout	-\$450.00	\$0.00	-\$450.00	\$0.00	Event replaced
Donations	-\$300.00	\$990.05	\$690.05	\$600.00	Increase \$300.00 LYB decrease \$300 on LYA.
Dues	-\$3,310.00	\$2,830.00	-\$480.00	\$3,420.00	Based on current membership list.
Misc Income	-\$60.00	\$305.24	\$245.24	\$60.00	No change to LYB.
Star Party Donations	-\$200.00	\$1,210.00	\$1,010.00	\$1,000.00	Increase \$800.00 on LYB, decrease \$210 on LYA (based on LYA performance + comet)
<b>TOTAL</b>	<b>-\$7,820.00</b>	<b>\$9,057.29</b>	<b>\$1,237.29</b>	<b>\$8,802.00</b>	<b>Increase \$760.00 LYB</b>

# ATM UPDATE



Tom Thibault and Jim Hendrickson completed their first mirrors at Dick Parker's workshop on Saturday, March 2. Both mirrors are 6-inch f/8.5.



Tom Thibault's image of the 14-day Moon on March 25 using an Astro-Tech 65EDQ and an Orion Solar System imager.





# Your Daily Dose of Astonishment

By Diane K. Fisher

As a person vitally interested in astronomy, you probably have the Astronomy Picture of the Day website at [apod.nasa.gov](http://apod.nasa.gov) set as favorite link. APOD has been around since practically the beginning of the web. The first APOD appeared unannounced on June 16, 1995. It got 15 hits. The next picture appeared June 20, 1995, and the site has not taken a day off since. Now daily traffic is more like one million hits.

Obviously, someone is responsible for picking, posting, and writing the detailed descriptions for these images. Is it a whole team of people? No. Surprisingly, it is only two men, the same ones who started it and have been doing it ever since.

Robert Nemiroff and Jerry Bonnell shared an office at NASA's Goddard Space Flight Center in the early-90s, when the term "World Wide Web" was unknown, but a software program called Mosaic could connect to and display specially coded content on other computers. The office mates thought "we should do something with this."

Thus was conceived the Astronomy Picture of the Day. Now, in addition to the wildly popular English version, over 25 mirror websites in other languages are maintained independently by volunteers. (See [http://apod.nasa.gov/apod/lib/about\\_apod.html](http://apod.nasa.gov/apod/lib/about_apod.html) for links). An archive of every APOD ever published is at <http://apod.nasa.gov/apod/archivepix.html>. Dr. Nemiroff also maintains a discussion website at <http://asterisk.apod.com/>.

But how does it get done? Do these guys even have day jobs?

Dr. Nemiroff has since moved to Michigan Technological University in Houghton, Michigan, where he is professor of astrophysics, both teaching and doing research. Dr. Bonnell is still with NASA, an astrophysicist with the Compton Gamma Ray Observatory Science Support Center at Goddard. APOD is only a very small part of their responsibilities. They do not collaborate, but rather divide up the calendar, and each picks the image, writes the description, and includes the links for the days on his own list. The files are queued up for posting by a "robot" each day.

They use the same tools they used at the beginning: Raw HTML code written us-

ing the vi text editor in Linux. This simple format has now become such a part of the brand that they would upset all the people and websites and mobile apps that link to their feed if they were to change anything at this point.

Where do they find the images? Candidates are volunteered from large and small observatories, space telescopes (like the Hubble and Spitzer), and independent astronomers and astro-photographers. The good doctors receive ten images for every one they publish on APOD. But, as Dr. Nemiroff emphasizes, being picked or not picked is no reflection on the value of the image. Some of the selections are picked for their quirkiness. Some are videos instead of images. Some have nothing to do with astronomy at all, like the astonishing August 21, 2012, video of a replicating DNA molecule.

Among the many mobile apps taking advantage of the APOD feed is Space Place Prime, a NASA magazine that updates daily with the best of NASA. It's available free (in iOS only at this time) at the Apple Store.

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



**The January 20, 2013, Astronomy Picture of the Day is one that might fall into the "quirky" category. The object was found at the bottom of the sea aboard a Greek ship that sank in 80 BCE. It is an Antikythera mechanism, a mechanical computer of an accuracy thought impossible for that era. Its wheels and gears create a portable orrery of the sky that predicts star and planet locations as well as lunar and solar eclipses.**



## Call for Photos

Skyscrapers members, in 2014 we will be celebrating the Centennial anniversary of our observatory in North Scituate. Frank Seagrave moved his 8-inch Clark refractor to the once dark skies on Peeptoad Road in 1914 from his old observatory on Benefit Street in Providence to escape the gas lamps and coal dust that were affecting his observations.

A committee has been formed, and we will be exploring ways to commemorate this special event.

Without going into the details (we want there to be some pleasant surprises), I am asking our long time members to search through their picture and slide archives looking for images that show Seagrave Memorial Observatory throughout the decades. I am particularly interested in images from the 50's through the 70's. Whatever format you have, please have them scanned at a high resolution (at least 2400dpi for slides and 300dpi for prints) and saved as uncompressed tiff or jpeg formats. We need raw images. Do not tweak them in any way.

When submitting your image(s) please provide as much detail as possible, including date, etc.

By submitting you are also giving Skyscrapers permission to reproduce your image(s), giving you full credit, in whatever media we choose to help illustrate the history of the observatory.

For a variety of reasons the deadline is May 1, 2013. Yes, this May!! However, please don't wait until that date to submit your image(s). Please submit when you find one or two. Don't hold them and submit all at once. Depending upon the resolution of your scan, we may have to ask to borrow your original to have it professionally scanned at a higher resolution.

You may submit your images by email to me at: [dhuestis@aol.com](mailto:dhuestis@aol.com)

Help us as we prepare to celebrate the Centennial anniversary of Seagrave Memorial Observatory.

David A. Huestis, Historian

Comet C/2011 L4

# PanSTARRS

Success!!!

After clouds prevented a local viewing of Comet PANSTARRS on Sunday and Monday night, and then rain on Tuesday night, a small contingent of stargazers (Tina Huestis, Glen Huestis, Tom Thibault, Rebecca Tremblay) chose an elevated location with a good unobstructed view to the west and finally observed this celestial visitor on Wednesday evening.

We set up even before the sun set (at 6:50 pm) so we would be ready to train our binoculars and telescopes on this dirty snowball from the Oort cloud at the edge of our solar system. Three other guests joined us during our observing session.

Based on reports from other locations, we knew it was going to be a challenge to find. Most observers stated they could not see it with their naked-eye. We didn't either. We kept sweeping with binoculars and Tom spotted it first around 7:20pm. Then each of us finally caught sight of it in binoculars.

Then I was able to sweep the general area of the sky with my 4.25-inch reflector

under low magnification and quickly got it into view. WOW! A fairly bright head with a distinct fan-shaped tail. Even once we knew where to look for it we still couldn't see it with the naked-eye. And even when twilight was fading we still couldn't see it without at least using binoculars.

We watched the comet until it sank out

of view behind the tree-line to the west.

Attached is an image I took with Tom's camera.

Hopefully it will be clear over the next few nights to continue our observations of Comet PANSTARRS.

Report submitted by Dave Huestis.



Waxing crescent Moon & Comet PanSTARRS over Providence during on Wednesday, March 15. Image by Jim Hendrickson using a Canon 40D and 16mm lens.



Waxing crescent Moon, March 13. Nikon D5100 on a 4-inch f/9 refractor. Image by Bob Horton.



Comet PanSTARRS, March 13. 1 second exposure using Nikon D5100 on a 4-inch f/9 refractor. Image by Bob Horton.



Lloyd Merrill finally a clear night on Wednesday, March 13. Image a little shaky because of wind. Canon 7D f/4.5, 200mm, 4 sec, ISO-800.



Jim Hendrickson managed to get a clear break from Frosty Drew Observatory on Friday, March 15 to capture Comet PanSTARRS using a Canon 40D and 85mm lens.



Comet PanSTARRS edges closer to the Andromeda Galaxy in this image taken from Frosty Drew Observatory on Friday, March 29 using a Canon 40D and 85mm lens.

# MARCH REPORTS



## Secretary

Tom Thibault

### Skyscrapers March Meeting Minutes – 3/1/13

President Ed Haskell, called the Skyscrapers January Members Meeting to Order at 7:30PM.

**President, Ed Haskell:** Ed introduced Catlin Wilson, a Providence High School student. Catlin has chosen to complete her required senior project on Astronomy. Ed asked the membership for anyone interested in mentoring Catlin to fulfill her project requirements. Catlin will need to complete a number of hours interacting with an individual in the field of astronomy. Catlin will also be building a telescope and would welcome any assistance in this endeavor as well including member donations of components that they can part with.

**Treasurer, Lloyd Merrill:** Introduced Robert Stahbush and David Miller for membership, both will be voted on at their next attended meeting.

**Trustee, Steve Siok:** Informed the membership the condition of the grounds at Seagrave are not suitable for Public Viewing and will continue to be closed until further notice.

**Good of the Organization: Member Observations:** Jim Crawford donated videos of last year's Pre-Stellafane workshops at the Hartness House.

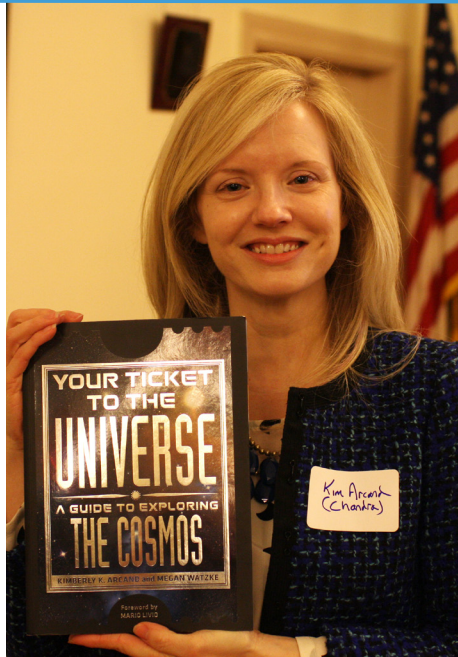
**Speaker, Kim Arcand,** Provided an entertaining presentation on "How to Color the Universe".

**Nomination Committee Chairman, Dave Huestis:** Announced the following committee's slate of Nominees for the April Election. • President- Ed Haskell • 1st Vice President – Kathy Siok • 2nd Vice President – Bob Horton • Secretary – Tom Thibault • Treasurer – Linda Bergemann • Trustee – Jim Crawford • Member at Large 1 – Pat Landers • Member at Large 2 – Ernie Ross

Dave asked if there were nominations from the floor of which none were received for any of the open positions noted.

Ed Haskell closed the meeting at 9:00PM.

Submitted by Tom Thibault - Secretary



### Skyscrapers Board Meeting Minutes – 3/18/13

Attendees: Ed Haskell, Kathy Siok, Tom Thibault, Lloyd Merrill, Steve Siok, Conrad Cardano, Dave Huestis and Jim Crawford

Meeting called to order at 7:20PM at Seagrave.

**Kathy Siok, 2nd Vice President:**

Suggested our Membership List identify the 2nd voting member of a Family Membership for both an accurate membership count and assist in Election Ballots and Mailings. • Discussed the need to retrieve mail from our mailbox in a timely manner. • The Mailbox should be replaced, current box is not weather tight. • A new lock will be purchased and keys will be provided to the President, Treasurer, and the Trustee's.

**Tom Thibault, Secretary:** Kathy Siok will take the April Members Meeting minutes during Tom Thibault's absence.

**Dave Huestis, Historian:** Raised the question regarding summer meeting format and property improvements.

The June, July and August Meetings will be held on Saturdays with June being a Pot Luck function.

Status of liability waiver for our neighbor Gene Allen will be reviewed.

Gene Allen will be contacted regarding our accessibility to his property.

**Ed Haskell, President:** The April Meeting will include the following: Annual Elections, Annual Budget, Honorary Membership Vote.

**Trustees:** Steve Siok and Conrad Cardano suggested the society prepare for the ISON Comet and the accompanying public interest it will generate. • A committee chairman will be appointed to head this investigation. • The lock on the 12" Meade Roll-off was replaced due to failure.

Meeting adjourned at 8:40PM

Submitted by Tom Thibault - Secretary

## Upcoming Meetings

**Friday, May 3** at Seagrave Memorial Observatory

William Vaughan, a graduate student in geological sciences at Brown, will give a talk about what the MESSENGER mission to Mercury has revealed concerning the interior structure, chemistry, and the geological processes operating on Mercury.

**Saturday, June 1** at Seagrave Memorial Observatory

Our June speaker will be **David Gow**, who did the restoration work on the Ladd Observatory clock drive system.



M42 by Bob Horton



# Treasurer

Lloyd Merrill

Category Description 4/1/2012-3/20/2013

## INFLOWS

<b>Astro Assem</b>	
Banquet-Registration	2,648.00
Grille	327.00
Misc	147.00
Raffle	600.00
<b>TOTAL Astro Assem</b>	<b>3,722.00</b>
<b>Donation</b>	
Misc Donation	1,010.05
Refreshment Donation	5.00
Starparty Donations	1,210.00
<b>TOTAL Donation</b>	<b>2,225.05</b>
<b>Dues</b>	
Family	970.00
Junior	45.00
Regular	1,800.00
Senior	670.00
<b>TOTAL Dues</b>	<b>3,485.00</b>
<b>Misc Income</b>	
Book Income	33.00
Interest Inc	32.24
Sale of Items	240.00
<b>TOTAL Misc Income</b>	<b>305.24</b>
<b>TOTAL INFLOWS</b>	<b>9,737.29</b>

## OUTFLOWS

<b>Astro Assem Exp</b>	
Caterer	960.00
Food Fri-Sat	43.19
Grille	208.08
Misc	12.95
Reception	127.24
Speaker Fee	108.00
Tent Rental	585.00
<b>TOTAL Astro Assem Exp</b>	<b>2,044.46</b>
<b>Facilities Expense</b>	
Electric	159.09
Insurance, Property	2,573.00
Propane	80.25
Property Maintenance Fund	445.00
Trustee Exp	969.22
<b>TOTAL Facilities Expense</b>	<b>4,226.56</b>
<b>Misc Expenses</b>	
Corporation, State Fee	22.00
Postage and Delivery	54.80
Refreshment Expense	290.04
Other Misc Expenses	2.00
<b>TOTAL Misc Expenses</b>	<b>368.84</b>
<b>TOTAL OUTFLOWS</b>	<b>6,639.86</b>
<b>OVERALL TOTAL</b>	<b>3,097.43</b>

## Cash and Bank Accounts 3/20/2013 Balance

Capital One Bank	12,295.54
Checking	10,356.41
PayPal Account	0
<b>TOTAL ASSETS</b>	<b>22,651.95</b>



## International Space Station

by Bob Horton

We had a favorable pass of the International Space Station, soaring nearly overhead for locations in southern New England during the early dawn of St. Patrick's Day.

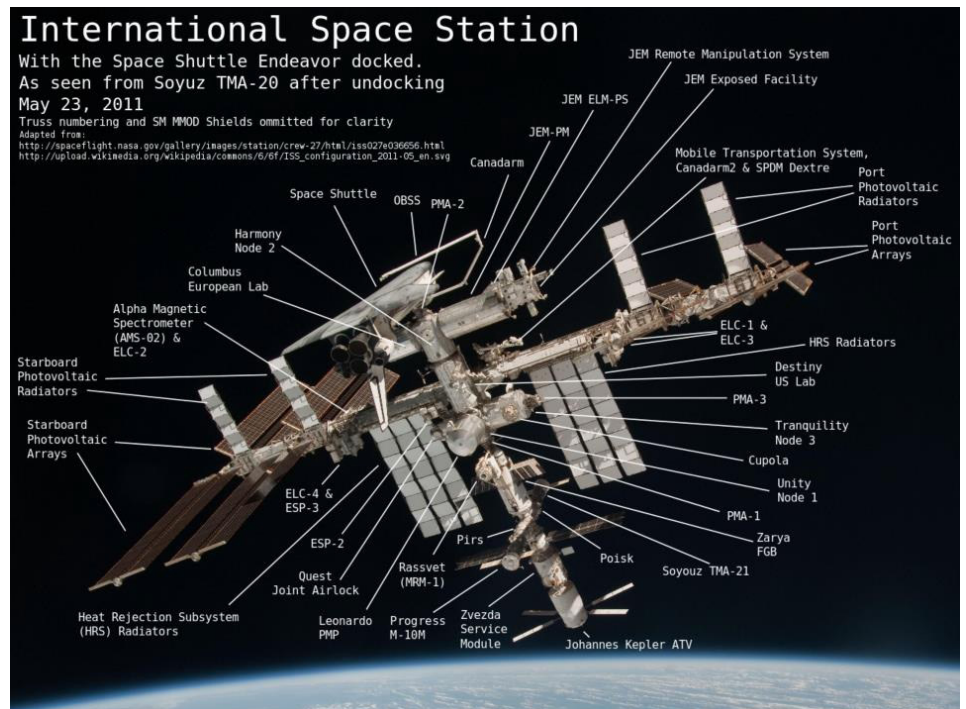
These shots were done using a Nikon D5100 camera body attached prime focus to my 12.5" telescope, using the telescope as a 1600mm telephoto lens. These are single shots, not video frames.

My telescope does not track the space station, so in order to capture images of it I aim my telescope just ahead of the moving space station, and wait for it to come into view of my Telrad finder. Keep in mind that the space station is only in the telescope's view for less than a second, so you have to be ready. Just as the ISS comes into view of the center bulls eye of my Telrad finder, I tripped the camera's shutter, which is set to continuous exposures, taking approximately 5 frames. I then repositioned the telescope again, just ahead of the ISS, and repeated the process.

In all I got about 20 shots in less than a minutes worth of opportunity as the station flew overhead. Exposures were 1/2,000 second at ISO 1,250. The best shots were then cropped, and minimal processing applied to sharpen slightly and boost contrast some.

Frankly, I was surprised by the level of detail I was able to capture. It's actually possible to identify many of the space station's components!

Getting photos like this is a lot easier than you might think, so if you have a DSLR, give it a try.

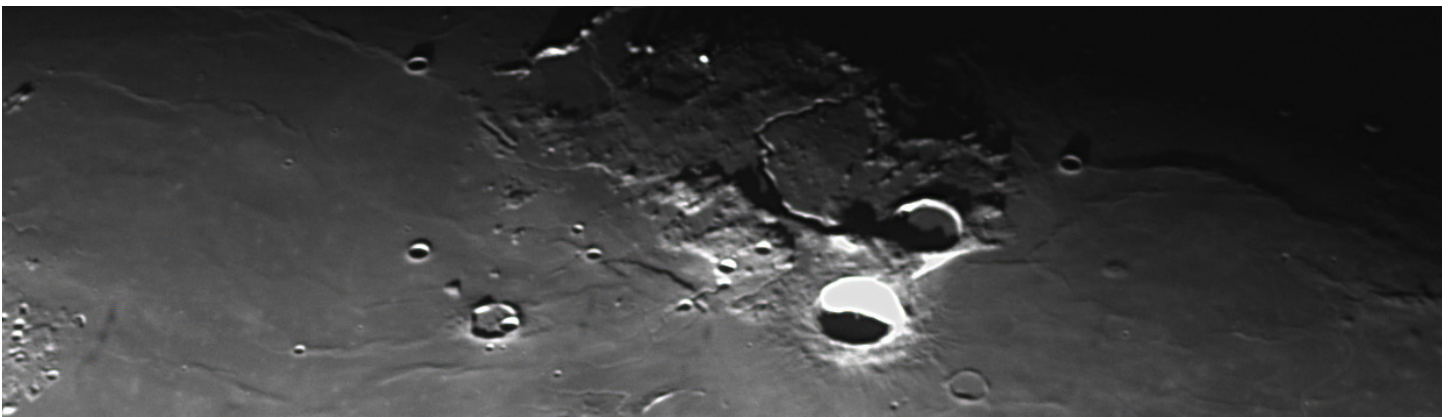




## Imaging through the Alvan Clark

Steve Hubbard

All images were taken with a ZWO ASI120MC color camera, 30 second to 1 minute AVI files and processed with AstroStakkert.







# Telescope Class for Beginners

Conrad Cardano

On Saturday April 20, I will hold a class from 10am to noon on how a telescope works. This is a class aimed at new astronomers.

Topics:

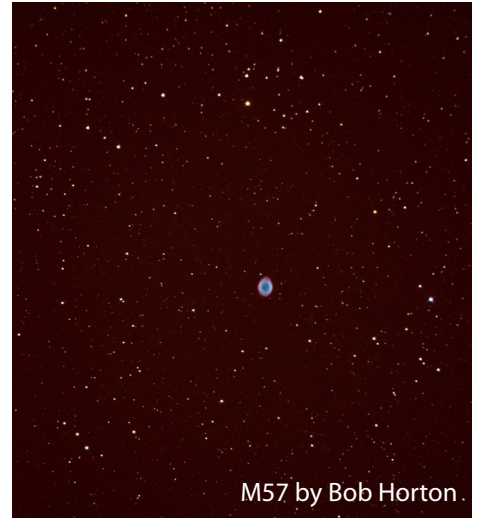
- 1) What are focal length and f-ratio. How to calculate them. Why are they important.
- 2) The major telescope designs: refractor, reflector, and SCT.
- 3) Telescope mounts: altazimuth, dobsonian, equatorial, and fork mount.
- 4) Eyepieces. How to calculate magnification and field of view.

**Everyone is welcome. If you know someone who is interested in astronomy, bring them!**

I will hold this class even if only 1 person is interested.

If April 20 is a bad day for you, please let me know. I will be happy to repeat this class in the spring.

If you are interested in attending, please contact me at [cardanoc@verizon.net](mailto:cardanoc@verizon.net).



M57 by Bob Horton

## Skyscrapers, Inc. Membership Renewal

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE \_\_\_\_\_

EMAIL \_\_\_\_\_

### Membership Dues

Annual Dues <small>(choose one category)</small>	
JUNIOR (13-17) <input type="checkbox"/>	\$15
REGULAR <input type="checkbox"/>	\$50
FAMILY <input type="checkbox"/>	\$60
SENIOR (65+) <input type="checkbox"/>	\$25
CONTRIBUTING <input type="checkbox"/>	
<small>(any amount in excess of annual dues is gratefully accepted as a donation)</small>	
	\$ _____

### Magazine Subscriptions\*

Members may optionally subscribe to the following publications at a significant discount from their regular subscription rates.

\*Magazine subscription rates subject to change at any time.

ASTRONOMY  \$34.00\*

SKY & TELESCOPE  \$32.95\*  
(\$10 savings)

TOTAL \$ \_\_\_\_\_

(Make check payable to Skyscrapers, Inc.)

Mail to: \_\_\_\_\_

Membership Secretary  
Skyscrapers, Inc.  
47 Peepload Road  
North Scituate, RI 02857

# Directions to Seagrave Memorial Observatory

## **From the Providence area:**

Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

## **From Coventry/West Warwick area:**

Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

## **From Southern Rhode Island:**

Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

## **From Northern Rhode Island:**

Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

## **From Connecticut:**

- Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
- or • Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

## **From Massachusetts:**

Take Interstate 295 South (off Interstate 95 in Attleboro). Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 Peeptoad Road  
North Scituate, Rhode Island 02857