



the Skyscraper

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February 2014

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

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February Meeting

Friday, February 7, 7pm
at North Scituate Community Center

Contact Kathy Siok (kathys5@cox.net) to report what dessert you plan to bring. (Beverages and paper goods will be provided)

Bring your Astronomical Photos to Display



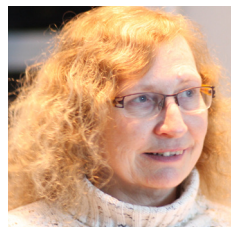
The Role of Water in Shaping the Surface of Early Mars by Tim Goudge

Data from both orbiting and landed spacecraft have long indicated that Mars had a period early in its history in which liquid water flowed across the surface, with abundant evidence for large rivers, lake systems, and water bearing minerals. The details of this time period (e.g., duration and transience of liquid water stability, pH and geochemistry of the surface water, interaction between surface and subsurface waters, etc.), however, still remain largely a mystery. This presentation will focus on recent and current work investigating the earliest period of martian history, focusing on the current thinking about the early period of aqueous activity, and what measurements and observations have been used to inform these ideas.

Tim is a native of Toronto, Ontario, and received his Bachelor of Science degree in Geological Engineering from Queen's University in Kingston, Ontario in 2009. Tim is currently in his 4th year of graduate school in the Department of Geological Sciences at Brown University, working towards a PhD under the advising of Dr. Jack Mustard and Dr. Jim Head. Tim's research primarily focuses on the composition of ancient lake deposits on Mars through the use of remote sensing techniques.



1 day old crescent Moon by Jim Hendrickson



The Central Falls Train Wreck of 1853 and the Institution of Time Zones by Francine Jackson

The first railroad accident ever photographed took place in Rhode Island in 1853; not only that, but it became the major reason we have time zones today.

Francine, a Skyscrapers member, is also Director of Frosty Drew Observatory, a Staff Astronomer at Ladd Observatory, Coordinator at the URI Planetarium, and Lecturer at Framingham State University. She is also secretary of the Blackstone Valley Historical Society, where she assisted in an exhibit on this historic event.



President's Message

Ed Haskell

Six months ago I wrote of our efforts to focus management attention on delivering improved value to the membership. I told you of the latest in a series of steps, the appointment of a Vice-President, Membership who would be responsible for the following:

1. In concert with the President, design and oversee initiatives for increasing membership, including but not limited to North Scituate based events, public outreach events, contact with local media and schools.
2. Devise activities for the benefit of existing members.
3. Maintain contact with members of less than two years, through email, in-person contact, the telephone, and other means, to ensure connection with the Society.
4. Be responsible for identifying newer members at all meetings, and performing in-person greeting and welcome at monthly meetings and member activities.
5. In concert with the Treasurer, identify non-paying or late-paying members and establish contact with same to learn member intentions or reasons for terminating membership.

I appointed long-time Member Pat Landers to this important position to serve until the end of my term (as provided for in the By-Laws), and told you that it was my intention to propose an amendment to the Constitution and By-Laws to make this position permanent in recognition of the essential role these responsibilities play in the success of the Society.

At the February meeting the Secretary will report the text of the amendments and questions will be taken from the floor. A month later at the March meeting the Amendments shall be voted upon. Assuming their passage I have instructed the Nominating Committee to seek a person or persons to run for the office of Third Vice-President who shall be responsible for the duties enumerated above.

As provided for in the Constitution and By-Laws the text of the Amendments shall be available in written form at both the February and March meetings and will be incorporated in the Notice of Meeting transmitted at least ten (10) days prior to the March meeting.

If you have any questions or comments you are encouraged to direct them to me in person or by email.

Thanks for all you do for Skyscrapers.



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

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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 **February 21** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to 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. Note that you will no longer receive the newsletter by postal mail.



Seagrave Memorial Observatory Open Nights

Saturdays at 7:00 pm
weather permitting





2014 Skyscrapers Elections

Tom Thibault

Skyscrapers Members,

February marks the beginning of preparations for our Annual Elections that will occur in April. The attached link: http://www.theskyscrapers.org/stuff/contentmgr/files/2/07da9ee58e2496fa41219ba37de66559/files/nominations_and_elections_document2.pdf will direct you to the Standing Rules for Elections documenta-

tion, including the Nominating Committee and Election Committee processes.

This year's Nominating Committee members are Chairman Tom Thibault, Dave Huestis, and Jim Hendrickson. I urge all those with an interest in increasing their involvement in Skyscrapers and to help shape our organization's future to consider running for a position. While the positions

of President, Secretary, and Trustee are open due to term limitations, all remaining positions within Skyscrapers are open for nominations as well.

The Nominating Committee will provide a sign-up sheet at the February Meeting for those who wish to be considered for a position.



Dr. Peter Schultz of Brown University's Geology Department and Director for both the Northeast Planetary Data Center and the NASA/Rhode Island Space Grant Consortium gives an acceptance speech after receiving his Honorary Membership at the January 17, 2014 Skyscrapers meeting. The membership voted unanimously at the April 5, 2013 meeting to award Dr. Schultz with an Honorary Membership in recognition for his ongoing contributions to Skyscrapers and astronomy and space research over the past three decades.

Phases of the Moon

First Quarter Moon

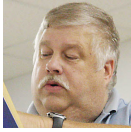
February 6 09:12

Full Snow Moon

February 14 23:53

Last Quarter Moon

February 22 17:15



Diamonds Upon Black Velvet

Dave Huestis

Look, up in the sky! It's a bird! It's a plane!! No, it's a bull!!! Taurus the Bull, that is. Taurus is an easy constellation to find, and it has several objects of interest for stargazers equipped with only binoculars or a small telescope.

On the next clear night go outside at around 7:00 p.m. and face south. About two-thirds of the way above the horizon to a point directly overhead (zenith), look for a V-shaped cluster of stars. Or if you'd rather, look straight up and let your eyes drift slowly southward about one-third of the way towards the southern horizon. (See accompanying star map.)

That open star cluster is called the Hyades, and it forms the bull's face. The vertex of the V forms his snout, the orange star Aldebaran is his right eye, and two stars out beyond the V are the bull's horns. Aldebaran is a giant star approximately 65 light years away and about 44 times the diameter of our Sun. If it replaced Sol at the center of our solar system it would extend outward almost to Mercury's orbit. Aldebaran is also the 14th brightest star in our sky.

The stars of the Hyades all formed from the same nebula (dust cloud), and the cluster is the nearest open cluster to our solar system at about 153 light years distant. Please note that Aldebaran is much closer to us and is not part of the Hyades cluster. It's simply a matter of perspective from our vantage point.

Need another clue to find the Hyades? There is another bright open cluster of stars called the Pleiades just above and to the right of the Hyades. This grouping of six stars resembles the shape of the little dipper (with which it is often confused), only on a much smaller scale. The Pleiades stars also formed from a common dust cloud, perhaps similar in appearance to the Orion Nebula today. They are much farther from the Earth at a distance of approximately 425 light years. Long photographic exposures show some dust surrounding the cluster, but it is now believed it is a dust cloud through which the Pleiades is passing, and not remnants of the original stellar nursery from which it formed. (See accompanying image obtained by Skyscrapers' secretary and past president Tom Thibault.)

(Does the Pleiades open cluster look somewhat familiar to you for some reason? It should if you are an observant person. You see it every day as you drive down the highways and byways of every city and state. It's the symbol for the Japanese car brand Subaru!

Still can't find this region of sky? You can download your own planisphere (starwheel) from Uncle Al's Sky Wheels on the Internet at <http://www.lhs.berkeley.edu/StarClock/skywheel.html> free of charge. I suggest printing it on heavy card stock paper so the starwheel remains rigid during use. Simply follow the included assembly

directions.

Like most of the constellations, many diverse cultures have depicted Taurus similarly, usually giving it the attributes of an ox or bull. It may even be one of the oldest constellations. Why? From around 4000 B.C. to around 1700 B.C., the vernal equinox (beginning of spring) was in Taurus. This fact alone made it revered among ancient peoples.

In addition, let's examine what classic mythology says about Taurus. The god Jupiter fell in love with the beautiful Europa. To attract her attention he transformed into a snow white bull. When Europa saw this beautiful animal, she climbed on top of his back. She may have been beautiful, but she wasn't very smart. Jupiter made off with her. Jupiter's exploit is commemorated in the sky as Taurus, and Europa had a continent (Europe) named after her.

Also, the prominent Pleiades have a mythology of their own. They were seven beautiful sisters who were pursued by Orion. They didn't like it one bit, so they pleaded with Jupiter for help. He changed them into doves and away they flew into the sky to find refuge among the stars. There the Pleiades dwell today, still being pursued by Orion to the east, with Taurus lying between them. Orion is too busy fighting off the bull to even notice them.

Observing objects within Taurus can be quite rewarding with even low magnification optics. That includes both the Hyades and the Pleiades open clusters. While the more compact Pleiades look good to the unaided eye, a pair of 7 X 50 binoculars offer an even more striking view. Using a low-power eyepiece on a telescope so the entire cluster appears in the field of view will be very rewarding. The Pleiades remind me of diamonds scattered upon black velvet. What do you see?

And last, but not least, Taurus contains the remnants of a supernova explosion. This smudge of nebulosity, called the Crab Nebula (also known as M1), can be seen with a three-inch or larger telescope. Dark skies are a necessity though. Larger telescopes show more intricate detail of the gases that were spewed out by the cataclysmic star explosion that occurred in 1054 A.D. A good star chart is required to find this beautiful object. Otherwise, ask one of the telescope



M45 The Pleiades by Tom Thibault. Canon T3i on an Astrotech 65mm with a 4 min exposure at ISO 100.

operators at any of the local observatories to show this stellar remnant some 6,500 light years away.

While you're enjoying the beauty of Taurus and his star clusters, direct your gaze to the east (left). You'll see a bright object nestled within the stars of Gemini. (See star chart again.) It's the planet Jupiter. Even a small telescope will reveal his four bright Galilean moons. If you don't have a telescope, visit an observatory to observe the banded belts and zones detail of Jupiter's cloud tops and possibly experience an event involving one of the moons.

So far this winter the extreme cold has kept many amateur astronomers indoors. However, once the temperatures moder-

ate, spend some time out in the clear and transparent skies to marvel at the wonders of the universe.

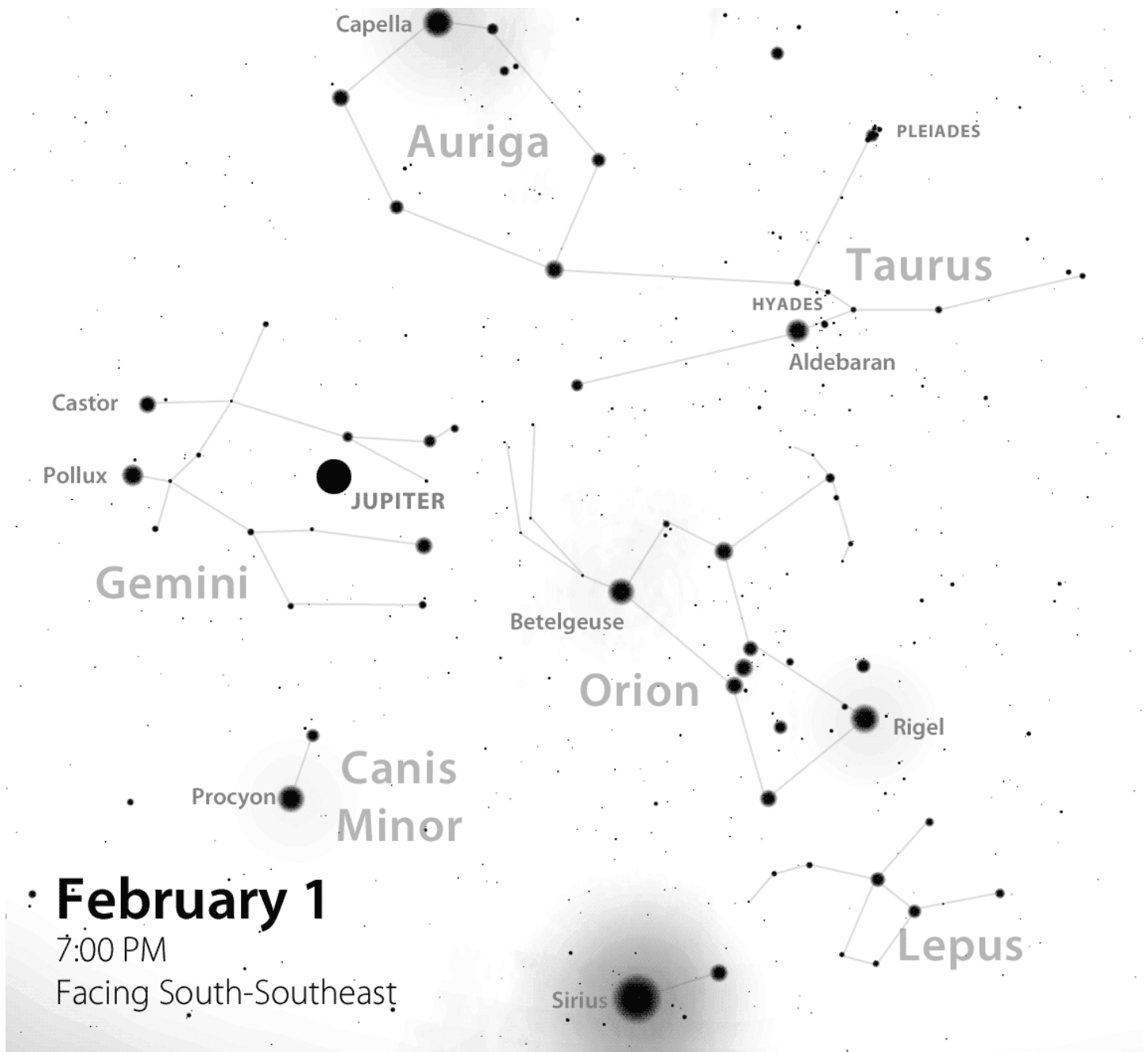
In conclusion, please remember that the local observatories do remain open year-round to provide incredible views of the heavens with their wonderful telescopes. These facilities are unheated, so dress warmly. Seagrave Memorial Observatory (<http://www.theskyscrapers.org>) in North Scituate is open every clear Saturday night. Ladd Observatory (<http://www.brown.edu/Departments/Physics/Ladd/>) in Providence is open every Tuesday night. Frosty Drew Observatory (<http://www.frostydrew.org/>) in Charlestown is open every clear Friday night. Snow or ice can

force closures, so please check the respective websites for any cancellation notices before venturing out for a visit. Currently the winter hours for Seagrave and Ladd are 7-9 p.m., while Frosty Drew begins at 6:00 p.m. with no set end time.

Keep your eyes to the skies!

Seagrave Memorial Observatory Centennial 2014 Calendar

There are a limited number of calendars still available. See Dave Huestis (dhuestis@aol.com) for details.





John Dobson entertains conventioners at Stellafane. Photo by Dan Lorraine.



In Memory of John Dobson

Francine Jackson

At the January 16, 2014 talk at Harvard's Center for Astrophysics, host David Aguilar reminded the audience of how the public tends to revere such celebrities as Oprah, Lady Gaga and the like, and how their main feature, in addition to fame and millions, is the size of their houses, often bigger than most museums and government buildings. Also, upon their death, an obituary can be found in virtually every major newspaper and magazine.

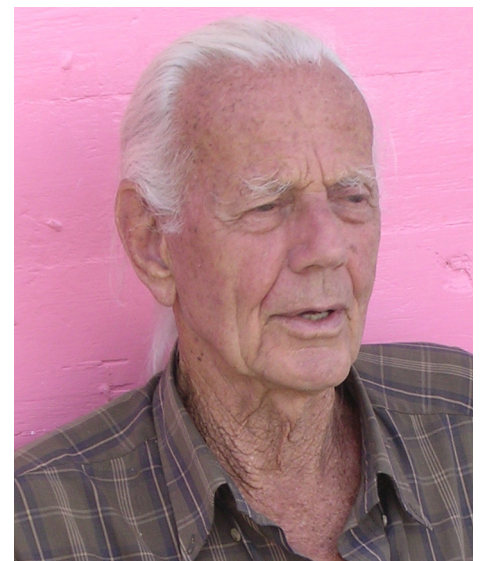
But, on January 15, 2014, a person died, at age 98, that most of that night's audience had heard of, but had no knowledge of his passing, as it hadn't been written in any popular venue: John Dobson, amateur astronomer and popularizer of a form of telescope mount that has allowed many who might have wanted a traditional instrument, but wouldn't have been able to afford one, to either make their own, or inexpensively purchase what might often have been their first telescope.

Born in Beijing, China, in 1915, John and his family came to San Francisco in 1927, where his father accepted a teaching

position in a local high school. John studied Chemistry at the University of California, Berkeley, in the early '40s, but in 1944 he heard a lecture by a Vedantan swami which changed him from a self-proclaimed atheist to a passionate lover of the universe and its creation. Soon after that, Dobson joined the Vedanta Society monastery, and became a monk of the Ramakrishna Order. While there, his main focus was reconciling astronomy with the religious teachings of Vedanta. To assist him in his work, Dobson became interested in building telescopes, to allow him to better understand the universe and to inspire a love of astronomy in others. Unfortunately for Dobson, this overconcentration in astronomy, along with a disagreement as to a paper wrongly credited to him that allegedly contradicted his science/religious studies, led to his leaving the monastery after over 20 years.

Dobson then began what was to become his life's work: Bringing astronomy to the public. By finding a large pile of surplus port holes, and grinding them to the proper parabolic curvatures needed, and picking

up leftover wood from construction sites to create an easy-to-use mount that allowed his homemade telescopes to freely move around 360 degrees (in azimuth) like a Lazy Susan, and up and down (in altitude), from the horizontal to 90 degrees, his telescopes were incredibly easy to set up and



to use. Although this configuration didn't have his telescopes move equatorially (with the apparent motion of the sky – the telescope operator had to act as “clock drive”), it allowed amateur astronomers the ability to own larger telescopes than they previously had, as there was no extra cost for the motorized mount— a benefit to many new sky lovers.

He also spent many nights on the street corners of San Francisco, allowing the public to take advantage of views of the night sky through his homemade instruments, thereby co-founding the San Francisco Sidewalk Astronomers. But, it was when the Riverside Telescope Makers invited him to one of their meetings that his fame grew.

Since then, Dobson's design has explod-

ed, to the point where there are now professional telescopes also utilizing his design. Included are some of the newer, extreme-sized instruments in use and in planning in Chile. Surprising to us in this modern world, John Dobson never patented his design, and therefore never made a penny for what essentially transformed the world of amateur (and professional) astronomy. Everything he did for the subject of astronomy was for the love of the cosmos and the enjoyment of the public.

Many of us in Rhode Island were privileged to have met John Dobson in 1989, when he visited both Ladd and Seagrave observatories. Although many members of his audience wanted to speak of his mount and how it transformed their observing, he was more focused on speaking of his con-

cepts of cosmology – which did, surprisingly differ from the norm at that time. Regardless, being with a man of such importance to the astronomical community made for a memorable night.

John Dobson died peacefully Wednesday, January 15th, in Burbank, California, at age 98; but, his life will continue with every Dobsonian ever used, now and in the future.



Comet Lovejoy meets Venus

Mark Sweberg

I had driven down to Point Judith, ostensibly to look for Comet Lovejoy. The previous week, Comet ISON, which the media had heralded as a possible comet of the century, dominated the conversation during Thanksgiving dinner. Hopes were raised that it would emerge from its rendezvous with the Sun and make good on that prediction. With much disappointment, ISON did not long survive that encounter. Yet, the astronomy community was abuzz with the prominence of several other comets, principal among them, Comet Lovejoy.

I had received a tweet that conditions would be favorable for viewing Lovejoy shortly after dusk that evening. Already dressed for the cold, I made my way to Narragansett in time for the early sunset, and a later meetup with a friend. Upon arriving, I talked to a lobsterman photographing the sunset, boat safely moored, who complained of being frozen to the core. He told me he liked having new experiences and learning new things, so we talked about comets and the sky.

As the sunlight blazed and then faded in the western sky, it became apparent that the west-northwest horizon would be a challenge to find Lovejoy in, as the light pollution from Galilee was conspicuous. The hope was that looking 14-degrees above the horizon toward the constellation Corona

Borealis would yield a blurry spot, easily visible with binoculars. With the help of a laser light pointer indicating Lovejoy's approximate position, I could just make out a blurry image, which kept coming in and out of view. I couldn't be sure if this really was the comet, or the result of my eyes tearing from the cold. I kept at it for a long while, without much success.

With frustration building up, I surveyed the 360-degree view of the horizon from our position. The Point Judith lighthouse boldly flashed her beacon, and was answered in turn, lovingly and intermittently, by her Beavertail relative, further down the coast. The quarter Moon cast a bright shine on the ocean at a distance, as boats passed in the night. The wind whipped, and the waves crashed.

I aimed my glance toward the southwest.

There, I beheld an amazingly bright planet Venus, throwing her light breathtakingly and reflectively on the water in a line between her and myself, as if to say, “Come to me.”

I was transfixed.

After the Sun and the Moon, Venus is the third brightest object in the cosmos. Astronomers use the term “magnitude” to represent the brightness of objects in the sky. Numbers range from negative digits, to zero, to positive digits, with the nega-

tive digits representing the brightest objects. With an approximate magnitude of -4, Venus is about 2.5 times brighter than a -3 magnitude object, which is in turn 2.5 times brighter than a -2 magnitude object, and so on.

Outshining the brightest stars, I wondered if in fact it wasn't Venus that I was wishing upon in my Brooklyn childhood as I recited “Star light, star bright, the first star I see tonight...”

And, like the proverbial girl next door you grew up with, but never noticed, who then matures into a beautiful woman, Venus was radiant and enrapturing that evening at Point Judith. At once a powerful presence in the sky, her soft glow on the water remained seductive. It was a sight to behold and to feel.

Like the frozen lobsterman I spoke to earlier, eager to experience something new, I experienced something novel and exciting, as well.

Standing in the cold and wintry blast of the night's fury, my breath had come out as white clouds and hovered in the air.

The clouds slowly wafted upward and touched the face of Venus.

Then, Venus spoke to me, as she had never done before.



Asterism & Star Cluster in Camelopardalis Kemble's Cascade/NGC 1502

Glenn Chaple

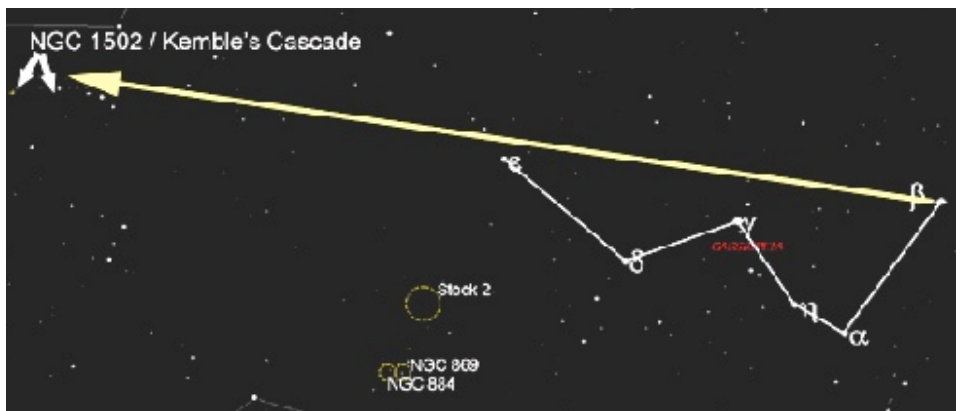
In 1980, while scanning a rather vacant area of the constellation Camelopardalis with 7 X 35 binoculars, Canadian amateur astronomer Fr. Lucian J. Kemble came across “a beautiful cascade of faint stars tumbling from the northwest down to the open cluster NGC 1502.” He reported his finding to Sky and Telescope “Deep Sky Wonders” columnist Walter Scott Houston, who featured the remarkable asterism in the December, 1980, issue. Houston appropriately christened it “Kemble’s Cascade.”

This 2½ degree-long chain is comprised of some two dozen magnitude 7 to 9 stars with a 5th magnitude star at its midpoint. NGC 1502 is visible as a fuzzy patch of light at the southeastern end of the Cascade. This dazzling 8 arcminute-wide open star cluster is comprised of several dozen stars, magnitudes 10 to 11. At its center is the pretty double star Struve 485 (Σ 485), a pair of 7th magnitude stars separated by 18 arcseconds.

Kemble’s Cascade can be found by sweeping your binoculars from beta (β) through epsilon (ϵ) Cassiopeiae and continuing in a straight line an equal distance beyond. A dark-sky location on a moonless night will help you pick up the fainter Cascade members. Should you decide to view Kemble’s Cascade via telescope, work with a rich-field instrument and an eyepiece that magnifies 15 – 20 times and captures a 3 degree field. NGC 1502 and its embedded double star are best viewed with a boost to 30X or more.



Sketch by Kiminori Ikebe (www.asod.info/?p=1272)



Finder chart for Kemble's Cascade and NGC 1502 (generated with Sky Tools 2 by Capella Soft)



Mercury sets behind Frosty Drew Observatory on January 31 by Jim Hendrickson.



16" f/23 Cassegrain Telescope for sale

The scope was built by Ferson Optical Co in MS in the early 50's and was mounted on the back of a pick up truck which traveled the levees of LA. The Pomfret School bought it through an ad in S&T- (May 1960 pg 424) and it served the school until the 90's. Its originally research was measuring variable Cepheid's under the direction of Jim McCullough.

I bought in 2006 and refurbished it, recoating the mirror and adding an easier to collimate Protostar heated spider and Moonlight custom focuser. It has served me well but I am replacing it with 12" LX200 GPS.

It is manually moved close to an object and then, using 60's electrical technology, zeroed in with hand controlled RA and Dec movements.

I'm asking \$3200 but will consider reasonable offers. This is a large and heavy telescope/mount system which would require 3 or 4 people and a pick up truck to move it from my roll off in Seekonk.

Thanks for your help.

Richard Savignano 508 336 7914 rfsav@comcast.net

JANUARY REPORTS



Secretary

Tom Thibault

Skyscrapers January Meeting Minutes – 1/17/14

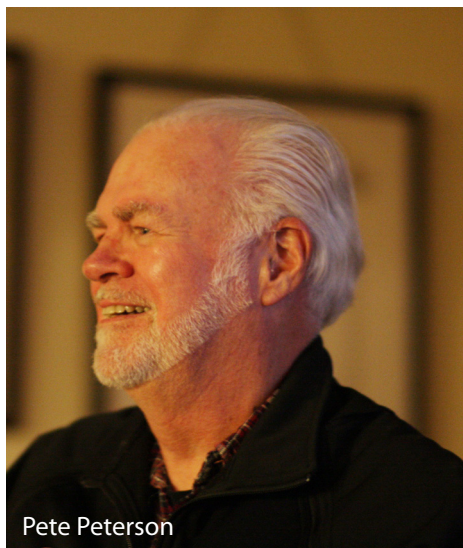
President Ed Haskell called the Skyscrapers January Members Meeting to Order at 7:35PM.

President, Ed Haskell: Ed began our meeting with the presentation of Honorary Membership to long time friend of Skyscrapers, Peter Schultz. Ed noted the many contributions to Skyscrapers over the years which included numerous presentations by Peter. • Ed presented Peter with a framed certificate of appreciation and noted the rarity of honor over the 80 plus years of our society. • Ed announced our current status concerning the societies insurance, which has had a significant increase in premiums. • Ed solicited assistance by any member with experience or currently associated with the insurance industry to contact BOD members. • The Board of Directors is currently reviewing possible coverage by multiple providers.

Treasurer, Linda Bergemann: Requested a vote for membership of John Thompson, Patricia McManus, Ian Dell'Antonio, which were approved by the membership.

Historian, Dave Huestis: Five (5) Centennial Seagrave Observatory Calendars are available for a \$20.00 donation.

Trustee, Steve Siok: Informed the membership of three (3) Frank Reed workshops are to be held at the Mystic Seaport



Pete Peterson

related to astronomical Navigation. Cost is \$100.00 per workshop and those interested can contact Steve for information. • Steve informed the group of the downed trees at the entrance of Seagrave and thanked those who assisted in the downing of the bug infested trees and their removal.

1st Vice President: Kathy Siok: Kathy introduced Pete Peterson, our featured speaker for the evening. • Pete presentation invited the audience to join him on a recounting of his Dec. 12th, 2013 observing session from his Wishing Star Observatory. • Pete objective that evening was investigating his ability to gather data on exo-planet transits and asteroid observations.

2nd Vice President, Bob Horton: Will be organizing a trip to the Springfield Science Museum in March, those interested in participating should contact Bob.

Good of the Organization: Bob Napier noted the passing of John Dobson. • Richard Savignano is selling his 16", F23 telescope; those with an interest can contact him.

Meeting adjourned at 9:15PM

Submitted by Tom Thibault - Secretary

Board of Directors Meeting Minutes – 1/27/14

Attendees: Ed Haskell, Kathy Siok, Bob Horton, Linda Bergemann, Tom Thibault, Steve Siok, Conrad Cardano, Jim Crawford, Jim Hendrickson and Matt White

Ed Haskell, President: Meeting called to order at 7:10PM offsite.

Kathy Siok, 1st Vice President: (2) Speakers are slated for the February Meeting. • Actively seeking a speaker for our March Meeting. • Would like to continue the dessert buffet as was done at the January Meeting

Bob Horton, 2nd Vice President: Preparations have yet to begin for AstroAssembly, but noted this year will include a Centennial Celebration. • Will pursue organizing monthly activities for the membership that may include observing nights, workshops, and field trips.

Linda Bergemann, Treasurer: Financials are in order. • Noted the difficulty of managing membership as it pertains to introduction and voting new membership under the current process.

Tom Thibault, Secretary: No report relating to Secretary, but discussed Nomination Committee. • Identified Dave Huestis



Treasurer

Linda Bergemann

Cash Flow YTD as of January 21, 2014
(4/1/13 through 1/21/14)

INFLOWS

AstroAssembly	
Banquet	\$1,220.00
Grill	\$421.50
Misc	\$30.00
Raffle	\$506.00
Registration	\$1,540.00
TOTAL AstroAssembly	\$3,717.50
Centennial Calendar	\$600.00
Donation	
Misc Donation	\$263.00
Refreshment Donation	\$172.20
TOTAL Donation	\$435.20
Dues	
Contributing	\$154.05
Family	\$300.00
Junior	\$15.00
Regular	\$1,240.00
Senior	\$650.00
TOTAL Dues	\$2,359.05
Misc Income	
Sale of Items	\$630.00
TOTAL Misc Income	\$630.00
Star Party Donations	\$74.00
Subscription Income	
Astronomy	\$358.00
Sky & Telescope	\$230.65
TOTAL Subscription Income	\$588.65
FROM Preservation Fund (See note below)	\$96.30
TOTAL INFLOWS	\$8,500.70

OUTFLOWS

Astro Assem Exp	
Caterer	\$1,000.00
Grill	\$244.13
Misc	\$68.90
Raffle	\$5.00
Reception	\$138.31
Tent Rental	\$670.00
TOTAL Astro Assem Exp	\$2,126.34
Centennial Calendar Production	\$299.60
Corporation, State Fee	\$30.00
Postage and Delivery	\$18.40
Property Insurance	\$419.00
Refreshment Expense	\$138.59
Subscription Payments	
Astronomy	\$392.00
Sky & Telescope	\$230.65
TOTAL Subscription Payments	\$622.65
Trustee Expense	\$1,252.79
Utilities	
Electric	\$155.00
Porta-John	\$693.00
Propane	\$80.25
TOTAL Utilities	\$928.25
TO Preservation Fund (See note below)	\$96.30
TOTAL OUTFLOWS	\$5,931.92
OVERALL TOTAL	\$2,568.78

Note: Designated Preservation Fund monies used to digitize photos for archive.

Cash and Bank Accounts - As of 1/21/14

Capital One Bank	\$12,329.35
Checking	\$13,203.80
TOTAL Bank Accounts	\$25,533.15

and Jim Hendrickson as committee members. • Indicated the positions of President, Secretary, and Trustee will be vacated due to term limitations and will require to be filled during this year's elections. • Noted that all

positions are open to nomination.

Trustees: Steve Siok and Conrad Cardano will review Observatory Committee member Public Night scheduling for coverage in developing a once a month Mem-

bers Observing Night.

Meeting adjointed at 9:30PM

Submitted by Tom Thibault - Secretary



Surprising Young Stars in the Oldest Places in the Universe

By Dr. Ethan Siegel

Littered among the stars in our night sky are the famed deep-sky objects. These range from extended spiral and elliptical galaxies millions or even billions of light years away to the star clusters, nebulae, and stellar remnants strewn throughout our own galaxy. But there's an intermediate class of objects, too: the globular star clusters, self-contained clusters of stars found in spherically-distributed halos around each galaxy.

Back before there were any stars or galaxies in the universe, it was an expanding, cooling sea of matter and radiation containing regions where the matter was slightly more dense in some places than others. While gravity worked to pull more and more matter into these places, the pressure from radiation pushed back, preventing the gravitational collapse of gas clouds below a certain mass. In the young universe, this meant no clouds smaller than around a few hundred thousand times the mass of our Sun could collapse. This coincides with a globular cluster's typical mass, and their stars are some of the oldest in the universe!

These compact, spherical collections of stars are all less than 100 light-years in radius, but typically have around 100,000 stars inside them, making them nearly 100 times denser than our neighborhood of the Milky Way! The vast majority of globular clusters have extremely few heavy elements (heavier than helium), as little as 1% of what we find in our Sun. There's a good reason for this: our Sun is only 4.5 billion years old and has seen many generations of stars live-and-die, while globular clusters (and the stars inside of them) are often over 13 billion years old, or more than 90% the age of the universe! When you look inside one of these cosmic collections, you're looking at some of the oldest stellar swarms in the known universe.

Yet when you look at a high-resolution image of these relics from the early universe, you'll find a sprinkling of hot, mas-



Globular Cluster NGC 6397. Credit: ESA & Francesco Ferraro (Bologna Astronomical Observatory) / NASA, Hubble Space Telescope, WFPC2.

sive, apparently young blue stars! Is there a stellar fountain of youth inside? Kind of! These massive stellar swarms are so dense -- especially towards the center -- that mergers, mass siphoning and collisions between stars are quite common. When two long-lived, low-mass stars interact in these ways, they produce a hotter, bluer star that will be much shorter lived, known as a blue straggler star. First discovered by Allan Sandage in 1953, these young-looking

stars arise thanks to stellar cannibalism. So enjoy the brightest and bluest stars in these globular clusters, found right alongside the oldest known stars in the universe!

Learn about a recent globular cluster discovery here: <http://www.nasa.gov/press/2013/september/hubble-uncovers-largest-known-group-of-star-clusters-clues-to-dark-matter>.

Kids can learn more about how stars work by listening to The Space Place's own Dr. Marc: <http://spaceplace.nasa.gov/podcasts/en/#stars>.

Solar System Gallery

These are noon time photos of Venus and Mercury, taken with the 16" telescope at the B&H observatory on January 17th. I used a Nikon D5100 at prime focus. Venus was just under 12 degrees to the west of the Sun, while Mercury at 12 degrees away to the east. Venus was 1 arc minute in size and was easy to see in its 2% illuminated phase in the 8x50mm finderscope. Mercury is only 5.3 arc arc seconds in size and is 91% illuminated. Bob Horton

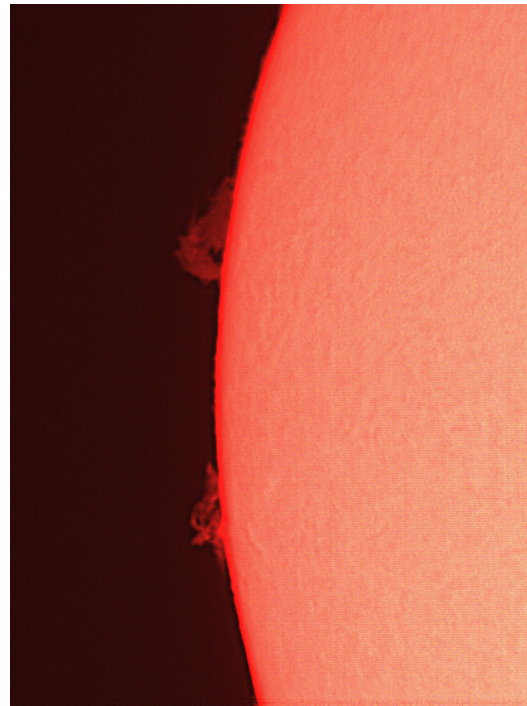
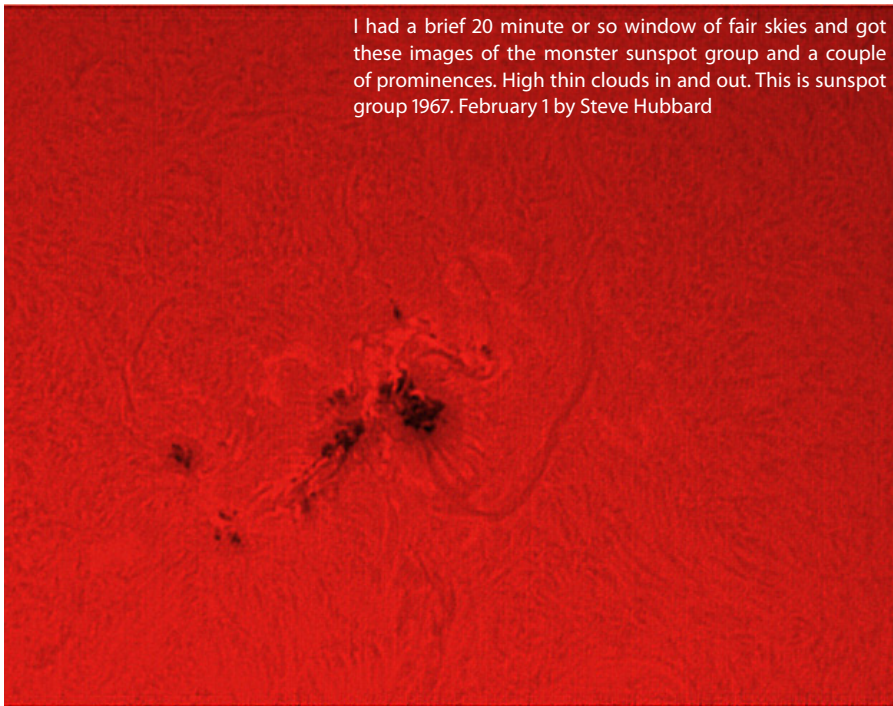


Jupiter, January 30. 60 second avi taking with a ZWO 120mc camera thru a 14" Meade SCT. Processed thru ASI2 and then registax. Steve Hubbard.

Moon & Mercury. January 31 by Jim Hendrickson.



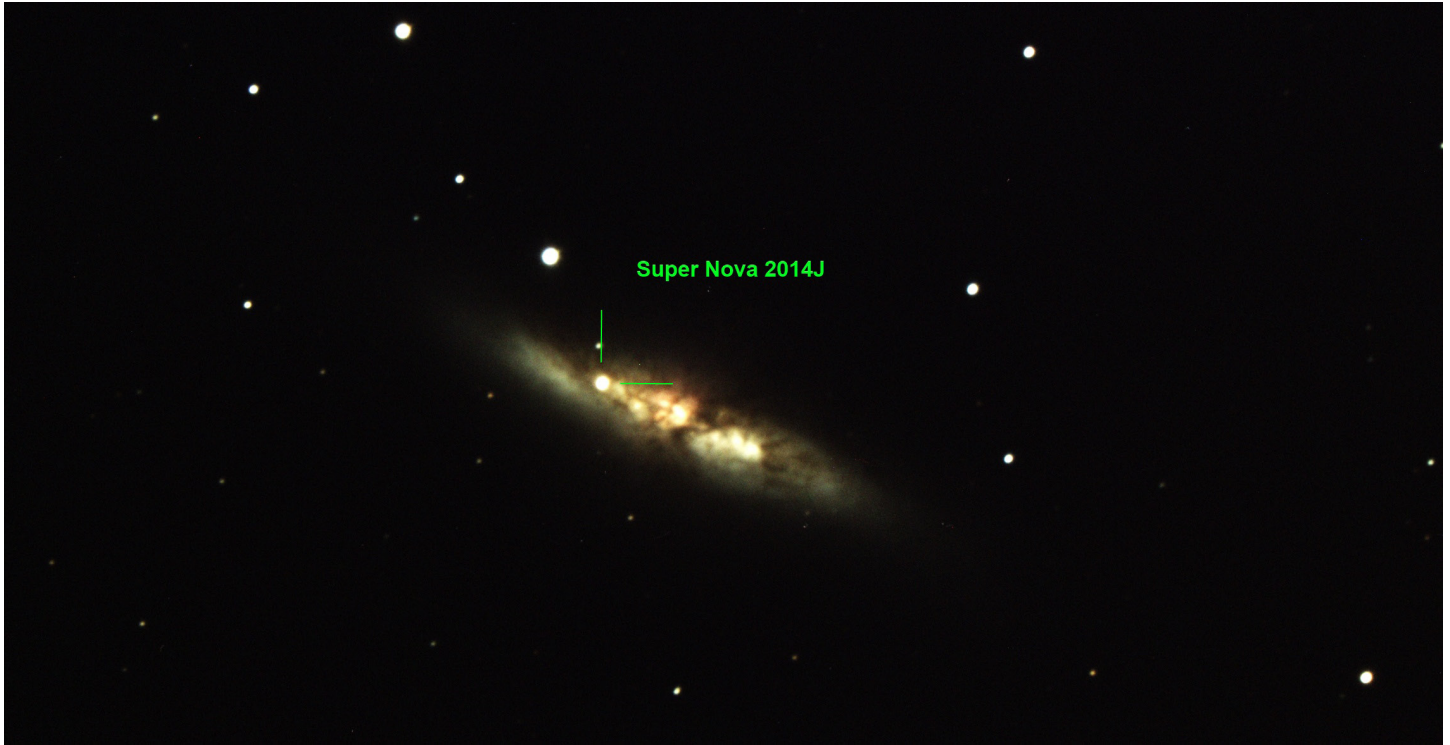
I had a brief 20 minute or so window of fair skies and got these images of the monster sunspot group and a couple of prominences. High thin clouds in and out. This is sunspot group 1967, February 1 by Steve Hubbard



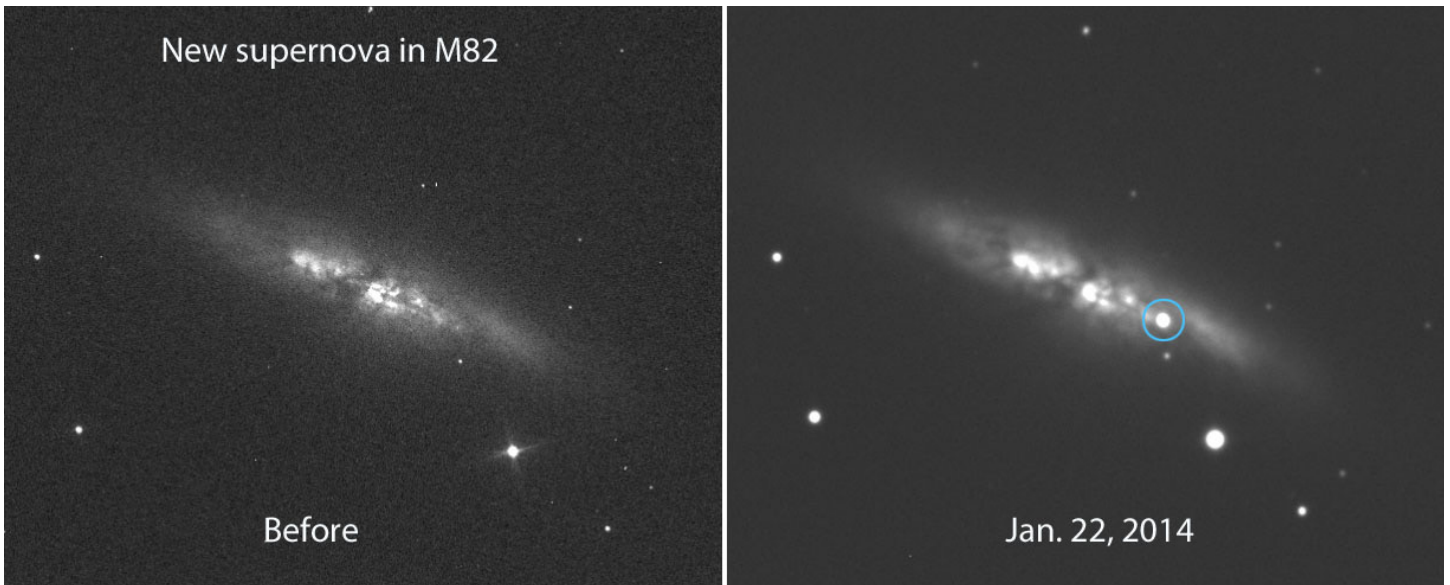
Sun with active region
1967 on February 4 by
Dan Lorraine.



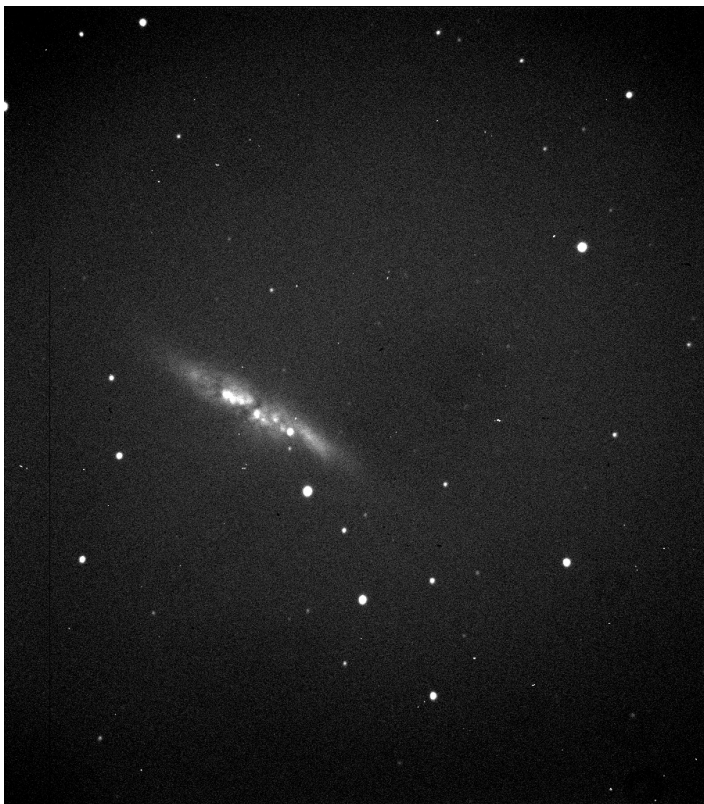
Supernova in the Starburst Galaxy M82



14" C14 with 6.3 focal reducer, SBIG STF-8300C, 10 -120 sec, bin 1X1. Captured and processed with Maxim DL, calibrated with darks, flats and bias frames. Imaged January 23 @ ~8:30PM. Lloyd Merrill



I successfully imaged the Supernova in M82 from Sarasota, Florida on January 24, 2014. I used a MEADE LX200GPS 10 inch f3.3 with the Deep Sky Imager II 15 second exposure. This is a raw image, no processing. Included is an internet shot for reference. Greg Shanos.



January 22: 2 minute exposure with a STL1001E camera and a V filter. The telescope is the 16" Meade on the Mathis mount. No processing done. Bob Horton



M 82 was with the same scope, taken with a Mallincam Extreme. Times of exposure shown in upper left hand corner. The supernova in M 82 is extremely bright. Steve Hubbard

GLOBE AT NIGHT 2014

January 20 to 29	July 16 to 25
February 19 to 28	August 15 to 24
March 21 to 30	September 15 to 24
April 20 to 29	October 14 to 23
May 19 to 28	November 12 to 21
June 17 to 26	December 11 to 20

WWW.GLOBEATNIGHT.ORG
 Get Out and Observe the Night Sky!

Engage people worldwide in observing the nighttime sky.
 Encourage students and families to participate in citizen-science with a hands-on learning activity.
 Gather light pollution data from an international perspective to monitor sky brightness and its effects.

Can you see the stars?

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