



the Skyscraper

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November 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 November
Astronomical Highlights
- 4 Preparing for Comet
ISON: What to Expect
- 7 Spiral Galaxy
in Pegasus
NGC 7331
- 8 Spaceport Charlestown:
Project Comet
Chase 1999
- 9 A Constellation I
Have Learned
- 10 Treasurer

Phases of the Moon

New Moon

November 3 12:50

First Quarter Moon

November 10 05:57

Full Hunter's Moon

November 17 15:16

Last Quarter Moon

November 25 19:28

AVAILABLE NOW:

**Seagrave Memorial
Observatory 2014
Centennial Calendar**

Page 8

Friday, November 1

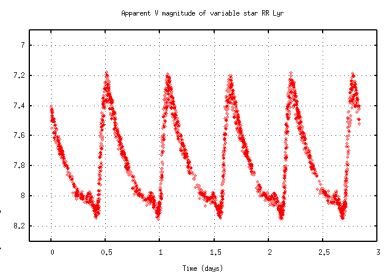
7:00pm at Seagrave Memorial Observatory

Study of RR Lyrae Stars from Kepler Results

by Katrien Kolenberg

The spectacular data delivered by the Kepler space mission have not only boosted the discovery of planets orbiting other stars, they have opened a window on the inner workings of the stars themselves. For the study of the RR Lyrae stars, Kepler has led to a breakthrough. To date, over 50 RR Lyrae stars are known in the Kepler field. I will present some of the most interesting results on RR Lyrae stars obtained through the Kepler mission so far.

Katrien Kolenberg was born in Belgium. She studied Physics at the University of Leuven, followed by a PhD in astrophysics. Her research took her first to Vienna, Austria, where she worked at the Astronomical Institute for several years. She currently works at the Harvard-Smithsonian Center for Astrophysics, in Cambridge MA, as a Marie Curie Fellow. The main focus of her research lies in stellar astrophysics, more specifically asteroseismology.



Seagrave Memorial
Observatory
Open Nights

Saturdays at 7:00 pm
weather permitting



President's Message

Ed Haskell

This month's Letter will depart from its customary form and will address four issues which might not individually justify their own Letter. The order is not necessarily indicative of relative importance.

Last month I asked that members communicate directly with me their ideas of how we might improve both the content and efficiency of star parties and Open Nights. I reminded members how important these activities are to our outreach efforts and how they are a major source of income to the Society. After discussing some of the difficulties we face in this area I suggested that a large proportion of our members have relevant experience and should be able to contribute their knowledge and insight. I was very disappointed that no one responded to this request. We will proceed with discussion on these important aspects of our activities as part of the Board's work on long range planning. But, if you want your opinions to be heard on this or any other subject it is imperative that you write to me to express your thoughts.

As this Letter is written it is nearing the end of October. While we all associate October with Halloween, it is also the cutoff

date for paying dues if one is to remain a qualified voter in the annual elections. It also means one is nearly four months past the point one may be dropped from membership for not paying dues. Both of these situations may be cured by the simple expedient of sending the Treasurer a check for your dues prior to the end of October.

AstroAssembly is just over and was a big success! Regular readers of the Letter know that I do not use exclamation points lightly, so that is an indicator of how successful I feel the conference was this year. The talks were uniformly quite good, the food, both lunch and banquet was excellent, and the social interactions were all that could have been asked. It takes a lot of effort from volunteers to put on such an event. These volunteers have already been thanked in another venue but I want to state again how much their dedication means to the Society.

The Board of Directors and the Trustees will meet in the next several weeks to consider the strategic direction for the Society over the five and ten year planning horizons. The results of that effort will be shared with the membership in due course.



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 **November 22** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to jim@distantgalaxy.com.

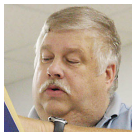
E-mail subscriptions

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.



Lunar photo by Steve Hubbard. More on page 11.





November Astronomical Highlights

Dave Huestis

While we wait for Comet ISON to rendezvous with the Sun on Thanksgiving, there are only a couple of other astronomical events the casual stargazer may find interesting to observe during November. Please remember that EDT (Eastern Daylight Time) or DST (Daylight Saving Time) ends on the morning of November 3 at 2:00 a.m. when we fall back one hour to EST (Eastern Standard Time).

Venus will be very prominent in the southwest sky after sunset. Though it will still be fairly low in the sky, try to observe her cloud enshrouded disk as its phase illumination changes from 50 percent (appearing like a First Quarter Moon) on November 1 to just 31 percent (appearing like a waxing crescent Moon) on the 30th. On the 6th a beautiful sky scene will greet stargazers after sunset as the waxing crescent Moon passes above Venus.

From the eastern seaboard of the United States we will be treated to a partial solar eclipse at sunrise on the morning of November 3. The eclipse will already be in progress as the Sun rises above the horizon. Please refrain from monitoring this event without proper filters or alternative observing methods. Despite a large portion of the Sun being covered by the Moon, harmful visible and invisible radiation will cause irreparable eye damage.

Just because the sunlight may be dimmed by the dense atmosphere when the Sun is low on the horizon, do not stare at it. Sunglasses will not provide adequate protection from the Sun's harmful rays. Number 14 welder's glass is safe to use. DO NOT use exposed film of any kind. This method is not safe. In past columns on observing solar eclipses I have instructed folks on how to build a solar eclipse viewer using a shoe box. I'm not sure this observing method will work in this circumstance. With the Sun so low, the resulting image may not be bright enough to project a reasonable image.

Only if you are an experienced solar observer should you attempt to observe this partial eclipse with a properly filtered telescope or by using the solar projection method. If you have never observed the Sun before this event, don't start now! Don't risk your eyesight due to an oversight or an outright mistake. Even if you have

one of those department store refractors that often come with small glass or plastic filters, do not be tempted to use them. They have been known to shatter when exposed to the Sun's concentrated image.

Think about what a small magnifying glass can do, and then imagine the amount of energy a larger telescope can focus. It's not worth it damaging your eyesight. Many years ago, when I first started out in astronomy, I had one of those glass/plastic filters shatter during a partial solar eclipse. Luckily I wasn't looking through the eyepiece at the time.

If you use the Sun projection method (using a telescope to project the Sun's image on a white screen), remember to be very cautious if other folks, especially children, are nearby. You don't want anyone accidentally stepping up to an unguarded eyepiece to take a look. And regarding eyepieces, do not use cemented eyepieces. Use air-spaced ones. Eyepieces have been ruined when the cement has melted due to the heat produced by the concentrated sunlight collected by a telescope. Also, remember to cap off your finder scope. I have seen solar observers singe their hair or clothes by failing to do so!!

If you purchased some solar eclipse glasses for the transit of Venus last year, here's your opportunity to put them to good use (considering clouds prevented

many of us from observing that event). These glasses will provide a safe view of the Sun. Even when observing the Sun using these glasses, observe caution as well. Caution will be the keyword of the day. You will not wish to ruin your eyesight by looking at the event unfiltered, for there will be many more astronomical events for your eyes to experience and enjoy in the coming years.

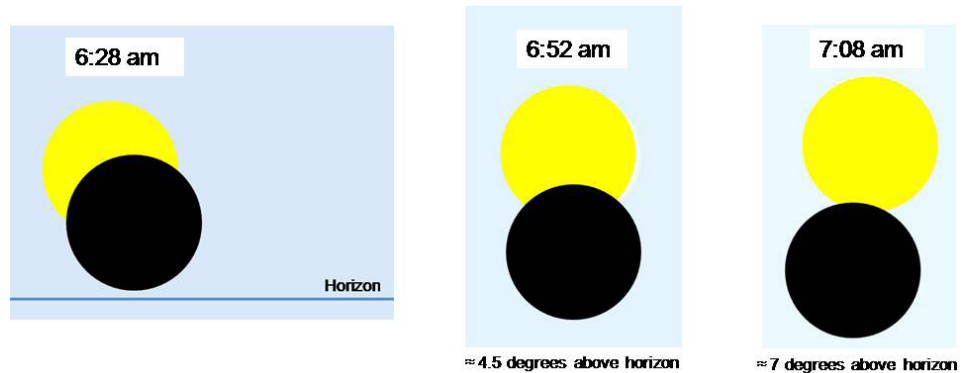
See the accompanying diagrams for how the eclipse will appear at specific times.

You may be wondering about the annual Leonid meteor shower on the morning of the 17th. Though the spectacular peak rates of more than a decade ago have long since passed, we can still usually expect to see perhaps up to 20 blue or green bright meteors per hour these days. And because the Leonids hit our atmosphere nearly head-on at about 44 miles per second the display produces many fireballs, with about half of them leaving trains of dust which can persist for minutes. Unfortunately, the Full Moon on the same night will prevent most members of this shower from being observed.

If you do happen to spot a very bright meteor, to determine if it is a member of the Leonid shower all you have to do is note if the shooting star originated in the area of the sky in the constellation of Leo. That radiant point is in the Sickle (backwards question mark) asterism. Bright Regulus marks the period of that punctuation mark.

Keep your eyes to the skies, but remember to be cautious if you intend on viewing the partial solar eclipse.

**Partial Solar Eclipse
November 3, 2013
(All times are EST.)**

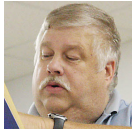


Looking ESE. Unobstructed horizon imperative. The partial eclipse ends at 7:13 am. Do not observe unfiltered Sun. Blindness can result. Sunglasses do not provide safe views.

Eclipse glasses made specifically for observing solar eclipses are safe to use.

Diagrams by David A. Huestis

Preparing for Comet ISON: What to Expect



Dave Huestis

In Part I, I provided a comet primer to prepare the reader for the arrival of Comet ISON from the depths of the solar system. If you missed Part I, it can be found online on the Skyscrapers website: <http://www.theskyscrapers.org/preparing-for-comet-ison-a-comet-primer-for-casual-stargazers>

Today's Part II will serve as an ISON observing guide, noting dates, times and locations of where to look in the sky. Should Comet ISON become a very bright comet, and if it survives its very close approach to the Sun, Skyscrapers will hopefully be planning observing opportunities. (Unfortunately due to our tree-obscured northwestern horizon we will not be able to offer comet observing with our telescopes at Seagrave Memorial Observatory in North Scituate.) Keep looking for updates in this news media regarding the location(s) and observing dates and times.

The Comet ISON story began in Russia on September 21, 2012. A faint spec was discovered on images taken with a 16-inch reflector telescope as part of an asteroid search conducted by the International Scientific Optical Network, hence the name of the comet. ISON was also given an official

designation of C/2012 S1.

When the orbit and distance were confirmed, it was determined to be approximately 623,000,000 miles from the Earth. Though the comet was still quite faint, original estimates suggested this dirty snowball was up to six miles across. And because it was discovered so far out, beyond Jupiter's orbit, some astronomers started to use such descriptions like "comet of the century" and will be "brighter than a Full Moon" and "even visible in broad daylight."

As I mentioned in my comet primer last month, comets do pretty much what they want to do. In fact, the only thing predictable about their behavior is that they are unpredictable.

Comet ISON continues its journey towards the inner solar system and a close encounter with the Sun on November 28. Calculations indicate the comet will pass within about 700,000 miles of the solar surface. More about that prospect later.

ISON was initially very bright at its discovery distance because it is believed that this is the comet's first trip towards the Sun. That means there was a lot of loose material on ISON's surface. Solar radiation

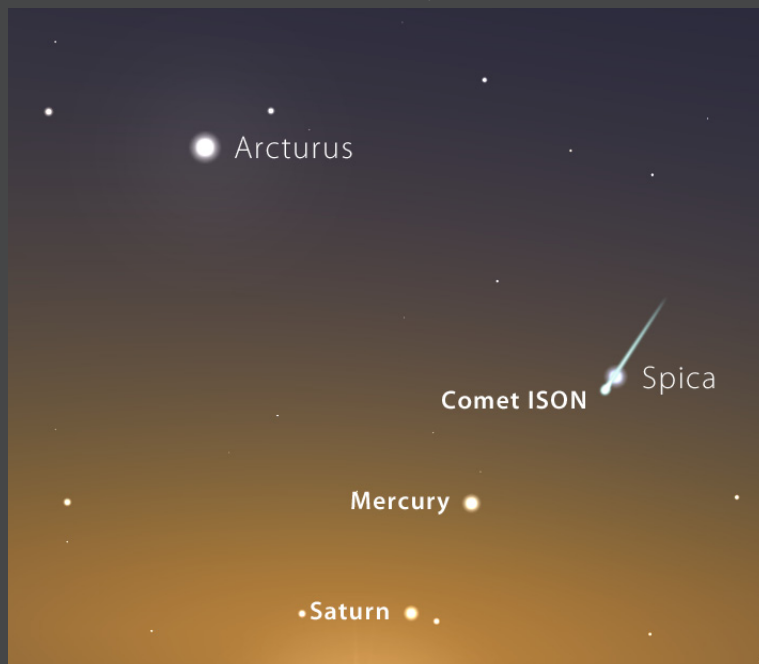
blew this material off into space, making the comet brighter.

However, after a period of time, the comet did not continue to brighten as predicted. The brightening stalled because the surface was most likely blown clean of loose material. By the time ISON got to the H₂O turn-on point (where water and other volatiles react to the Sun's heat and escape through cracks on the comet's surface), the comet was about two magnitudes (6.3 times) fainter than forecast.

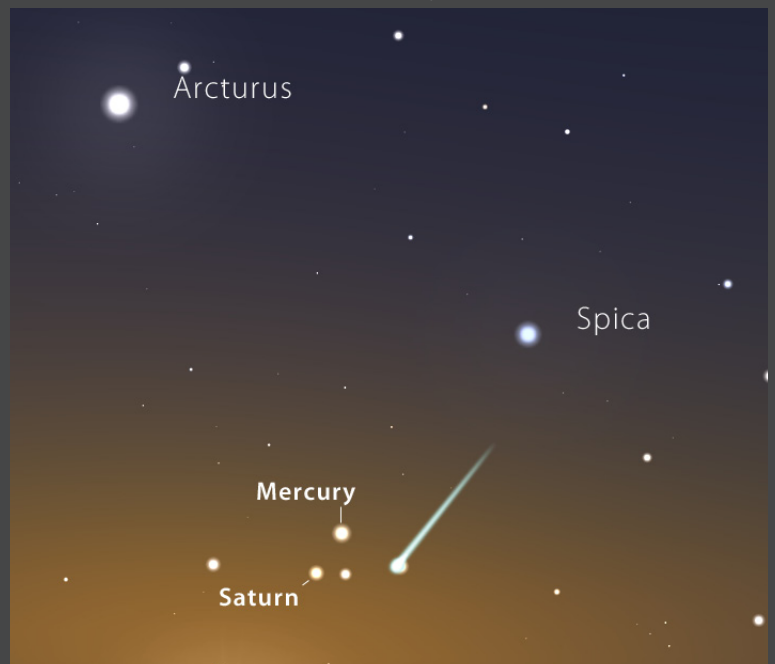
At the end of May, while Comet ISON was still out beyond the orbit of Mars, it was lost to view because it was in the direction of the Sun. When the comet finally moved out of the solar glare and was imaged on August 12, it was still fainter than what was originally forecast. At the time, some comet experts thought it was still too early to make a reliable call on what we could expect to see as ISON neared the Sun. Others simply didn't believe it would become visible to the naked-eye. And there are those experts who do not believe Comet ISON will actually survive its close passage to the Sun.

Even as I write this column in mid-October, I find it difficult to make any definitive predictions for the visibility of Comet ISON. (Remember, comets are quite unpredictable.) ISON has been visible to stargazers with telescopes using star charts or computerized pointing systems to locate the comet in the sky. In time, binoculars

November 18 6AM, Facing East



November 23 6AM, Facing East



may eventually provide a small but recognizable image. Naked-eye views may not be afforded. Only time will tell. For now I will simply relate when and where in the sky you will have the best opportunity to catch a glimpse of Comet ISON.

While advanced amateur astronomers have been imaging ISON for some months, it is now more easily accessible to a casual stargazer with modest telescope equipment. On November 1, you can locate the comet about 22 degrees above the eastern horizon at 5:00 a.m. Don't expect to see it with the naked-eye. The comet will be about as faint as the planet Neptune. To verify you are in the general area of the sky, you will easily see the red planet Mars residing within the constellation of Leo. ISON will be about seven degrees below and to the left of Mars. Use a wide field eyepiece and slowly scan this region. Comet ISON should display the typical comet shape with a tail of unknown length.

Each morning the comet will move closer and closer to the horizon and the Sun. Don't forget that we set our clocks back one hour on Sunday, November 3 at 2:00 am as we "fall back" from Daylight Saving Time to Eastern Standard Time. Even though this practice will have no affect on the comet itself, the area of sky where you observed the comet on the first at 5:00 a.m. will now be seen at 4:00 a.m. On the 5th Comet ISON will move into the constellation of Virgo. By the 10th ISON

will only be 17 degrees above the horizon. To observe the comet at a higher position in the sky you'll need to observe later in the morning, closer to dawn's early light.

ISON will quicken its movement each morning as it plunges towards the horizon and a rendezvous with the Sun on November 28. At this time it is very hard to predict when the comet will be lost to view, especially since more recent brightness forecasts have ISON much fainter than originally thought. We may lose sight of it a day or two before perihelion (closest point to the Sun).

If ISON survives its close approach to the Sun (within about 700,000 miles of the solar surface), it may briefly brighten as it rises back into the morning sky to begin its journey back into the depths of the solar system. First it will appear just before sunrise very low in the east-south-east. Each morning it will climb higher into the sky and away from the Sun's glare. Soon ISON might be seen in morning twilight, and then will rise into a darker sky. It's merely guesswork at this point what may be seen.

Also after perihelion ISON will become visible in the evening sky right after sunset. However, during the first couple of weeks in December ISON will hang very low above the west to north-west horizon. You'll need an unobstructed view to observe the comet. Originally astronomers were saying the tail would extend many tens of degrees into the sky. That scenario is not likely to happen. I

do hope the now pessimistic predictions are wrong. If ISON ends up being a nice, not great, comet visible to the naked-eye, then we'll all be happy.

As the weeks progress, ISON will begin to rise above the north-western horizon. By December 25, it will still be visible in telescopes as it climbs towards the north. On January 7, it will pass within two degrees (four Full Moon diameters) of Polaris, which shines at magnitude +2. The comet will be about +7 magnitude and not visible to the naked-eye. Binoculars may still show it, but it is mere speculation whether a tail will still be detectable.

After that the comet will even more quickly fade from view and memory.

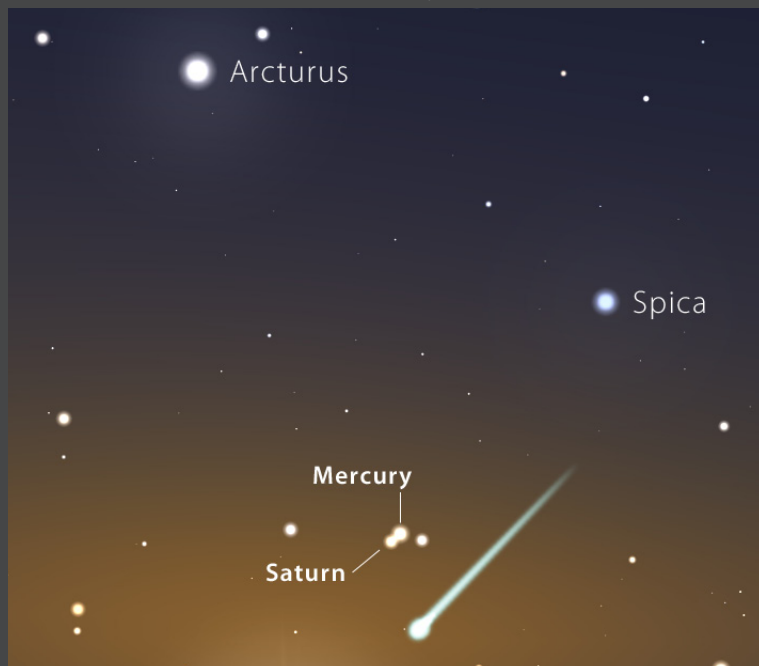
Please keep in mind the above forecasts are extrapolation from known ISON facts and past comet behavior. Anything can happen.

Should new information come to light during the next few months I'll be sure to pass them along to the various news outlets so you will have the best opportunity to view Comet ISON.

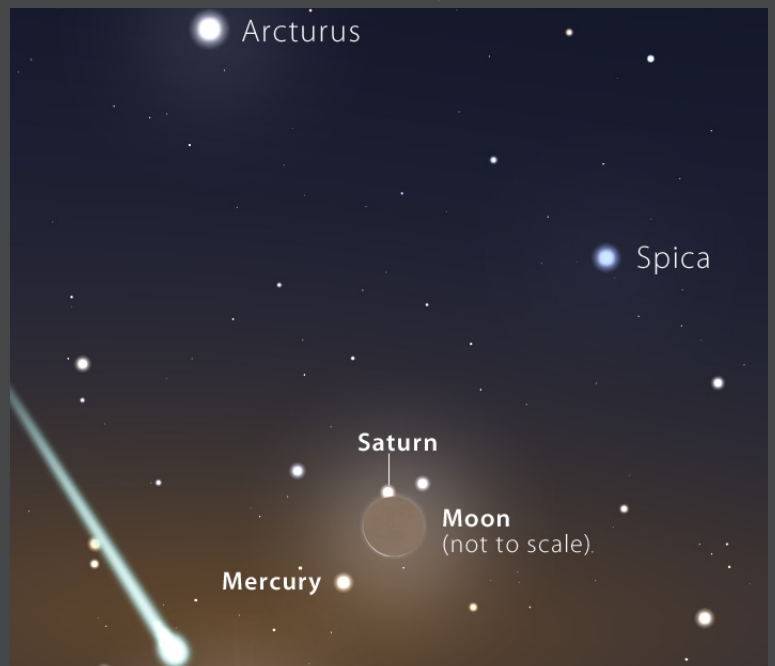
Since ISON received so much hype after it was discovered, I hope the national news services will keep everyone posted on Comet ISON updates. They can more quickly keep the general public informed should ISON's viewing prospects change.

Keep your eyes to the skies.

November 25 6AM, Facing East



December 1st 6AM, Facing East





Lunar Straight Wall captured through the 12" Meade on the 9/14/13 open night by Tom Thibault.



View of the Moon taken Sunday night 10-13-13 by Bob Derouin. A tripod mounted 4" f/10 sct telephoto lens was used. 1/400 sec at f/10 1000 ISO.

Last Quarter Moon taken by Jim Hendrickson during members' observing night, Friday-Saturday, October 18-19 at Seagrave Observatory.



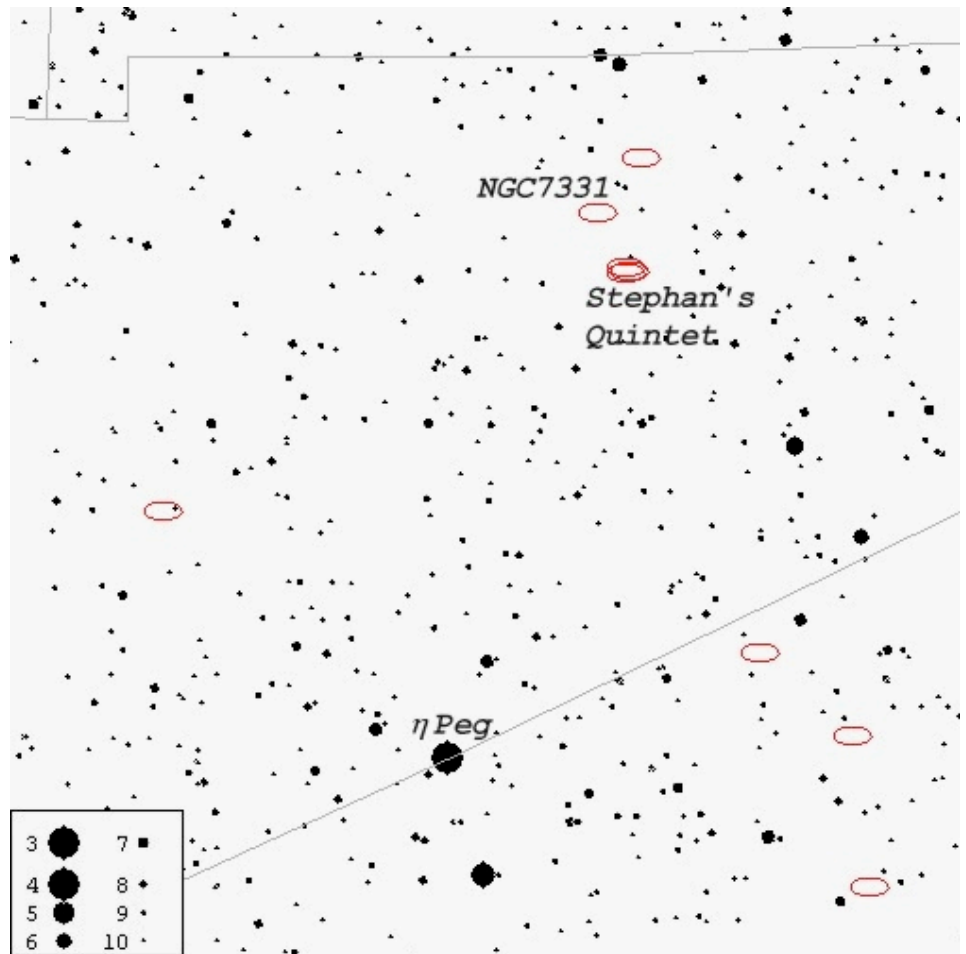


Spiral Galaxy
in Pegasus
NGC 7331
Glenn Chaple



What would the Andromeda Galaxy look like were it 20 times more distant? To find the answer, we need look no further than the spiral galaxy NGC 7331 in Pegasus. In size (a 130,000 LY diameter) and mass (300 billion suns), NGC 7331 is essentially a twin of the Andromeda Galaxy. Place the Andromeda Galaxy beside NGC 7331 and it, too, would be a magnitude 9.5 “faint fuzzy” with 10.5 by 3.5 arcminute dimensions.

I first viewed NGC 7331 in the fall of 1977, using a 3-inch reflector and a magnifying power of 60X. To me it appeared as “a faint small object that seemed slightly ellip-



tical.” A recent observation with a 4.5-inch reflector yielded a similar result. In both instances, I was seeing the galaxy’s nucleus. Would a larger scope reveal the spiral arms? A 10-inch reflector did, but barely. In my logbook, I wrote, “Some hint of extensions – like a small, faint M31.”

The accompanying finder chart shows

the location of NGC 7331 – a 4 ½ degree star-hop north and slightly west of eta (η) Pegasi. Just ½ degree SSW of NGC 7331 is Stephan’s Quintet. This clump of galaxies, ranging in magnitudes from 12.7 to 13.1) is a favorite target of owners of large-aperture telescopes.



AstroAssembly
Report & photos coming in the
December 2013 issue of *The Skyscraper*



Spaceport Charlestown: Project Comet Chase 1999

Francine Jackson

One of the strangest secrets of Rhode Island is that it actually was the site of a rocket launch. On November 18th, 1999, Project Comet Chase was launched from Ninigret Park, in Charlestown, in an attempt to intercept the dust trail of Comet Tempel-Tuttle. The rocket was a Loki/Viper, provided by and launched under the auspices of NASA. The bottom part, the Loki, was intended for the upper, Viper, section to be sent high enough for it to collect comet dust.

At its launch, over 5,000 people, including 3,800 local school children, watched as this first rocket ever to be launched from this area was sent up, in hopes that it would return with its intended dust.

As the Frosty Drew Observatory was the closest building to the launch site – there is still a boulder with a plaque on it to commemorate this event in Ninigret Park just a few hundred feet from the Nature

Center/Observatory – there were programs concerning comets and the intended mission at the facility.

Unfortunately, the final chapter of this mission didn't come to very positive results. The lower stage, the Loki, was retrieved by a local fisherman, and it is on display in the Frosty Drew Sky Theatre. Although it has been painted to try to preserve its surface, pits and scratches from its voyage can still be seen on it. The major section, however, is probably lost forever. It was supposed to be reclaimed by a Coast Guard ship that, at the precise moment it was to be sent to the landing site, was instead diverted to an emergency call by a stranded boater. Fortunately, although the Viper wasn't retrieved, and is still "lost at sea," the payload's area was built to be water tight and vacuum sealed; therefore, if it is ever located, there is a very good chance the comet dust it collected could possibly still be intact.



Seagrave Memorial Observatory Centennial

2014 Calendar

\$20 Donation



Construction of Frank Evans Seagrave's new observatory on Peeproad Road in North Scituate, Rhode Island, August 14, 1914.

Next year Skyscrapers will be celebrating the Centennial of Seagrave Memorial Observatory (1914-2014).

Jim Hendrickson and Dave Huestis created a calendar to help commemorate this event. The initial print run was first offered at AstroAssembly on October 5.

We have about a dozen remaining. They will be offered on a first-come first-served basis at the November meeting for a donation of \$20. If we run out, we will have a sign-up sheet available and a second run will be printed.

Don't miss this opportunity to own a unique commemorative which highlights the pictorial history of Frank Evans Seagrave's beloved observatory.



A Constellation I Have Learned

Mark Sweberg

Modern astronomers recognize 88 constellations, covering the entire sky, in both northern and southern hemispheres. Some constellations have their beginnings in relatively recent times, such as the southern hemisphere's Telescopium, named in 1751, depicting a telescope. Others have origins that have been lost in the mist of time. One of the earliest recognized constellations on record, Leo, depicting a lion, was first described by the ancient Mesopotamians, who observed a similar stellar pattern as early as 4000 BCE. But, back to Leo in a minute.

Many of us know that constellations are totally imaginary constructs that people have envisioned over the past 6,000 years. Simply put, they are bandings of stars that seem to outline the shape of something, originally with mythological significance to ancient peoples.

In today's day and age, far removed from the myth and superstition of our forebears, the real significance of recognizing constellations is to help in identifying individual stars, nothing more. On a really dark night, far from sources of polluting light, one can see upwards of 1500 stars. Trying to tell one star from the other is hard. By separating the sky into manageable bits of varying shaped patterns, constellations help us distinguish individual stars. They are used today simply as memory aids, or visual mnemonics.

These days, I've been learning my way around the sky by becoming familiar with the many constellations and visible stars that are viewable in our area after dark. Recently, I've spent a lot of time becoming familiar with Leo. A lot of time.

Leo, the lion, is one of only several constellations that really do appear like its namesake. He consists of two distinct and separate patterns of stars that are visualized by our brain as one, and which lumps them together to form a lion. Towards the right of the field of vision, a backward question mark signifies the head and mane, while a triangle of stars to the lower left carves out the lion's hindquarters and tail. Leo is a springtime constellation in the northern

hemisphere, high in the south in April and May.

Leo has been noticed, as we've seen, for over 6,000 years. Perhaps the ancients were immortalizing their newly domesticated cats they revered. For, it was about this time that wild cats learned that, just by living with humans, they would have easy pickings of rodents attracted to the grain stores springing up around new agriculturally-based settlements of people. Our ancestors may have simply tolerated or even encouraged the wild cats to take up residence nearby, in an effort to reduce the rodent population. In either case, the association worked, and has ever since, on different levels. Just ask any cat lover.

My own little cat, Zack, got very sick this past spring. His time is now up, as is the time of the constellation Leo, who has left the sky for the winter. Zack has had his turn on the great mandala, as it moved through his brief moment of time.

Now, as fall transitions into winter, I feel a special bond with pet owners who have experienced a loss of their special charge. For, perhaps as John Grogan, bestselling author of *Marley and Me* (2005), a book about his family dog, best put it "Animal lovers are a special breed of humans, generous of spirit, full of empathy, perhaps a little prone to sentimentality, and with hearts as big as a cloudless sky."

Canis Major, the great dog, is a constellation of the winter. He protects his friend, Orion, the hunter. Pet owners, who have lost their pups, may recognize their furry friends in Canis Major this winter, if they try.

The constellation Leo, the lion, is a constellation of the spring. He's gone now. He'll be back when the wildflowers bloom and the birds sing.

This winter, I'll look up, through the cloudless skies, into the void. Come April, I'll look into the night and let the night embrace me

I'll look for Zack, my little lion, then, amidst the stars.

I'll look for a constellation I have learned.



Astrophotos by Jim Hendrickson. Top: Pleiades; middle: Sculptor Galaxy (NGC 253) and globular cluster NGC 288; bottom: Andromeda Galaxy.



The second members' star party of 2013 was held on Friday, October 25. The event was organized by Membership Secretary Pat Landers and the skies remained clear. About a dozen members attended and were treated to views through six refractors provided by Jim Crawford, Jim Hendrickson, Dan Lorraine, Steve Hubbard, Tony Tripodi, and Jim Moneghan. Conrad Cardano opened the 16-inch Meade, moved into the meeting hall and ran some demonstrations using the automation hardware and software. Targets of observation featured Uranus and Neptune, several double stars, the globular clusters in Hercules, the Andromeda Galaxy the Double Cluster, and many others. Jim Hendrickson stayed until 1:45 shooting astrophotos and caught a late look at Jupiter and the last quarter Moon. Look for the next members' star party to be held sometime in November or December.



Treasurer

Linda Bergemann

Cash Flow YTD as of October 15, 2013
(4/1/13 through 10/15/13)

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 | \$520.00 |
| Donation | |
| Misc Donation | \$192.00 |
| Refreshment Donation | \$138.20 |
| TOTAL Donation | \$330.20 |
| Dues | |
| Contributing | \$154.05 |
| Family | \$240.00 |
| Junior | \$15.00 |
| Regular | \$1,040.00 |
| Senior | \$525.00 |
| TOTAL Dues | \$1,974.05 |
| Misc Income | |
| Sale of Items | \$330.00 |
| TOTAL Misc Income | \$330.00 |
| Star Party Donations | \$74.00 |
| Subscription Income | |
| Astronomy | \$324.00 |
| Sky & Telescope | \$230.65 |
| TOTAL Subscription Income | \$554.65 |
| FROM Preservation Fund (See note below) | \$96.30 |
| TOTAL INFLOWS | \$7,596.70 |

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 | \$9.20 |
| Refreshment Expense | \$120.35 |
| Subscription Payments | |
| Astronomy | \$324.00 |
| Sky & Telescope | \$230.65 |
| TOTAL Subscription Payments | \$554.65 |
| Trustee Expense | \$1,252.79 |
| Utilities | |
| Electric | \$102.91 |
| Porta-John | \$594.00 |
| Propane | \$80.25 |
| TOTAL Utilities | \$777.16 |
| TO Preservation Fund (See note below) | \$96.30 |
| TOTAL OUTFLOWS | \$5,266.39 |
| OVERALL TOTAL | \$2,330.31 |

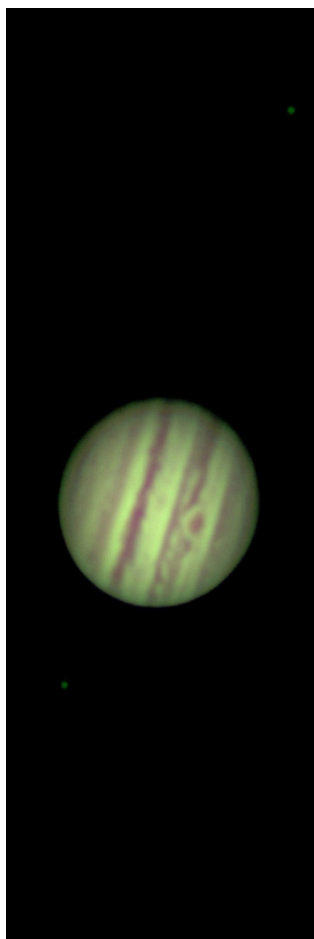
Note: Designated Preservation Fund monies used to digitize photos for archive.

Cash and Bank Accounts - As of 10/15/2013

| | |
|----------------------------|--------------------|
| Capital One Bank | \$12,320.03 |
| Checking | \$12,995.40 |
| TOTAL Bank Accounts | \$25,315.43 |



Images of the Moon and Jupiter by Steve Hubbard I captured these images on the morning of October 28 at about 5am using his 6" Jaegers F10 with my ZWO imager, processed all through ASI2. Seeing was fair, the images through the 6" are far superior to what I'm able to get thru my 12" Meade SCT. The only problem I'm having is balancing the color. The 6" is an achromat so there is some color which makes things a bit more challenging.



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