



# the Skyscraper

vol. 38 no. 1  
January 2011

Amateur Astronomical Society of Rhode Island ★ 47 Peepoad Road ★ North Scituate, Rhode Island 02857 ★ www.theSkyscrapers.org

## Seagrave Memorial Observatory is open to the public

weather permitting

Saturdays 7pm - 9:00pm

Please note that the observatory may be inaccessible for several weeks following a winter storm. See web site for updates.

## North Scituate Community Center

All of our winter meetings (Dec-Mar) are held at the Community Center. From Seagrave Observatory, the Community Center is the first building on the right side going south on Rt. 116 after the intersection of Rt. 6 Bypass (also Rt. 101) and Rt. 116. Parking is across the street.

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## January Meeting with David Sliski

FRIDAY, JANUARY 7, 7:30PM  
AT NORTH SCITUATE COMMUNITY CENTER

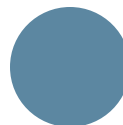
### Maria Mitchell Observatory: A Century-Old Research Institution on Nantucket

Maria Mitchell, recognized as America's first woman astronomer, believed students learned best via hands-on learning. In 1865 she became the first professor at Vassar College, and in 1908 the Maria Mitchell Observatory (MMO) was erected beside her Nantucket birthplace to continue astronomical research in her honor. With a 7.5-inch Cook triplet (mounted by the Clark Corporation) and a series of very dedicated directors, the observatory conducted world-class studies of variable stars. In 1957 with the support of the NSF, its second director, Dr. Dorrit Hoffleit, started an intensive program of a hands-on astronomical education for young American women. In 1977 the program first opened its doors to men. With continued support from the NSF, the MMO recruits six students every summer and schools them in experimental and theoretical astrophysics. While MMO has never had large telescopes, it has focused on interesting research projects that students can complete in eight to ten weeks. In 1997 Dr. Vladimir Strelinitski took over as Director and soon won an NSF grant to upgrade the instrumentation. The 7.5-inch Cooke/Clark telescope was replaced with a 17-inch PlaneWave reflector, and a 24-inch Ritchey-Chretien reflector was added to the facility. Equipped with modern CCD

cameras, students now study active galactic nuclei, monitor exoplanet transits, and continue the legacy of former directors by studying variable stars.

David Sliski currently works as an Observational Astronomer at Maria Mitchell Observatory and is presently preparing to publish, in co-authorship with other MMO researchers and students, a new method to extract emission lines using narrow-band filters and thereby better classify certain variable stars. His past work includes data analysis of the environmental channels at the LIGO gravitational wave observatories; hardware design to "squeeze" laser light used in third-generation gravitational wave detectors; spectroscopic and photometric data acquisition of the re-entry of European Space Agency's ATV-1; work on brown dwarf surveys using SPITZER Space Telescope data; and hardware design for the OSETI project. He is also an avid amateur astronomer and proud owner of a 1860s Reinfeldler and Hertle mahogany refracting telescope. A recent graduate of the University of Massachusetts, he has also served as the Director of the UMass-Amherst Orchard Hill Observatory 2008-2010, and he is a regular attendee of the annual Stellafane Convention.

Phases of the Moon



4



12



19



26

**OTHER NOTABLE EVENTS:** Jupiter is 0.6deg S of Uranus on the 2nd. Earth is at perihelion on the 4th. Quadrantid meteor shower peaks on the 4th. Double satellite transit on Jupiter just as the planet sets on the 9th. Double shadow transit on Jupiter on the 17th. Double satellite transit on Jupiter on the 24th.

# President's Message

Tom Thibault



Dear Skyscrapers Members,

Our December Holiday Meeting was enjoyed by all those who attended. The festivities began with our pot luck dinner, where members prepared a large selection of main dishes, finger foods, and pastries. Following our delicious meal, Skyscrapers' long time friend Dennis di Cicco, thrilled us all with his presentation, "Fun with 6 Billion Pixels: Building a Huge Hydrogen-Alpha Mosaic of the Winter Milky Way". Dennis, in collaboration with fellow colleague Sean Walker, took on what could only be described as a daunting task of photographing an 85 degree swatch of the Milky Way from Canis Major to Perseus with exposures in hydrogen-alpha light. Their results were stunning.

Our business meeting followed, including the introduction of Alex Bergemann by Dave Huestis. Dave is sponsoring Alex for membership to be our youngest Skyscraper. Dave informed us of Alex's achievements and read a written endorsement from Woody Spring, Rhode Island's own NASA Shuttle Astronaut. These are quite the accolades to have been received for such a young amateur astronomer. Along with the support of our membership, I look forward to welcoming Alex as a junior Skyscraper member at our January Meeting. The meeting concluded with "Certificates of Recognition" being

presented to Al Hall, Dick Parker, Jim Hendrickson, Francis O'Reilly, Bob Horton, Dave Huestis, Steve Hubbard, Jim Brenek, Steve Siok, the Kusmierz family, and yours truly. The beautiful restoration of the Alvan Clark is due to their hard work and contributions. Let me again thank them on behalf of our membership for all their efforts.

Our Members' Survey was included as part of the December Newsletter. Please take the time to fill out a copy and provide your feedback. It is our intention to utilize the returned information to develop future Members' Night programs. It is our desire to tailor these nights with activities many of our members find of interest. A survey return box will be set up at our next couple of meetings, but surveys can also be returned by mail. Please address your Members' Survey to Skyscrapers Inc., 47 Peepoad Rd., N. Scituate, RI. 02857, Attn: Members' Survey.

Lastly, I would like to wish you and your families a joyous Holiday Season. May all of your holiday wishes be granted. I look forward to seeing all of you next year.

Happy New Year.

Clear Skies

Tom Thibault

Skyscrapers

President



The Skyscraper is published monthly by Skyscrapers, Inc. Meetings are usually held on the first Friday of the month. Public observing is usually held every Saturday night at Seagrave Memorial Observatory, 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 **January 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.

# Meteor Shower Prospects for 2011 & Other Astronomical Highlights

Dave Huestis

2011!!! Where does the time go? It seems like almost yesterday we were worried about Y2K. Now we're into the second decade of the second millennium. Where has the time gone?

While we seem to fill every waking moment with important activities, I trust you will take a time-out from your busy schedule in 2011 to enjoy some of the finer astronomical events that will grace our (hopefully) cloud-free skies.

If you are a regular reader of this column, you know that my January submission highlights the meteor shower prospects for the coming year, plus a few additional celestial events. Obviously some years are better than others. Unfortunately 2011 won't be one of the better ones.

The best meteor shower of the year will be the Quadrantids, which will peak on the night of January 3-4. This title usually goes to the August Perseids or the December Geminids, but moonlight will severely affect those shooting star displays in 2011. The Moon will be New during the Quadrantid peak, so observers in a dark sky could potentially see up to 100 meteors per hour. The predicted peak is for 8:00 pm on the 3rd for us on the eastern seaboard.

Unfortunately the radiant point, not far from the end star (Alkaid) of the Big Dipper's handle, is very low above the north-east horizon during the early evening hours. This scenario will certainly reduce the number of meteors seen. As the radiant rises higher into the sky throughout the night (it will be at its highest elevation just before dawn), an observer might still see an increase in the number of meteors. The Quadrantids are often blue and frequently blaze more than halfway across the sky at 25.5 miles per second.

The Quadrantids have a very sharp peak, perhaps lasting only an hour or two. So if you are not diligent or the cold forces you indoors early, you could miss the best performance of this display. Regardless, please remember to dress warmly and keep any light pollution source from destroying your dark adaptation. All you need are your eyes

to enjoy this beautiful shooting star display.

While a few of the remaining 2011 meteor showers are not drastically affected by moonlight, their peak numbers are not spectacularly noteworthy. Unfortunately more than half will be threatened by varying degrees of interfering moonlight. A quick glance at the chart below highlights those instances.

Clip and save this 2011 meteor shower prospects chart and use it to plan your observing schedule for the coming year. I will highlight the specifics of each shower in my monthly columns throughout the year. Good luck with your meteor observing efforts.

In addition, on January 1st, Saturn rises just after midnight. It will still be a few months until we can observe this magnificently ringed planet at a "reasonable" hour of the evening, but it will be well worth the wait. On April 3rd Saturn will be at opposition. That is, it will be opposite the Sun in the sky and will rise at sunset. A couple of hours later it will be well placed for observing. At that time Saturn's rings will be tilted nine degrees south from the horizontal, thereby providing us a view of the northern face of this beautiful feature. By the end of the year that angle will increase to 15

degrees. The planet will indeed be the focus of many telescopes dotting the Rhode Island landscape. It is a sight not to be missed.

Further, while there are six eclipses in 2011 (four partial solar and two total lunar), we will not be able to view any of them from here in Southern New England.

In conclusion, if you want to get close-up views of the Moon, planets and other celestial objects, please visit the facilities at Seagrave Memorial Observatory (<http://www.theskyscrapers.org>) in North Scituate and Ladd Observatory (<http://www.brown.edu/Departments/Physics/Ladd/>) in Providence. While it can be quite cold observing in these unheated domes, these facilities do remain open year-round provided snow or ice does not force closures. Please check their respective websites for any cancellation notices before venturing out for a visit. Currently the winter hours are 7-9 pm.

Despite the less than favorable Moon phases for many of 2011's meteor showers, let's hope that on their individual peak nights of activity we can catch a glimpse of at least one or two of them over the course of an evening. And cross your fingers for favorable weather during the Quadrantids, the best meteor shower of 2011.

Happy New Year!

## Meteor Shower Prospects for 2011

Month	Date	Shower	Moon Phase
January	2-4	Quadrantids	New Moon
April	22-23	Lyrids	Waning Gibbous
May	5-6	Eta Aquarids	New Moon
June	15-16	Lyrids	Full Moon
July	28-30	Delta Aquarids	New Moon
July	29-30	Capricornids	New Moon
August	12-13	Perseids	Full Moon
October	20-21	Orionids	Last Quarter
November	16-17	Leonids	Waning Gibbous
December	13-14	Geminids	Waning Gibbous

## Francine Jackson Sky Notes

Now that we've begun the coldest part of the year, we are fortunate to have over our heads what some feel is the most beautiful set of constellations to enjoy. After all, who isn't able to quickly find the Hunter Orion above us at this time? With its belt of stars and symmetric brilliant Rigel and Betelgeuse, Orion is perfect for introducing a new stargazer to the wonders of the season. The belt, especially, can be used as an arrow. Follow it to the right, or west, and you see a star very close to Betelgeuse in ruddy hue. This one, Aldebaran, is the bull's eye of Taurus. Situated at the upper left of a perfect letter "V," the bull's face bounces off the sky into your eyes. Continue the line to the right, and you discover the little object very often mistaken for the Little Dipper - the seven sisters, the Pleiades. Situated right on Taurus's back, this

beautiful open cluster—once you're found it, you just can't lose it—your eyes will drift right to it.

Back to the belt, this time travel to the left, to the brightest star in our nighttime sky, Sirius, the nose of our Big Dog, Canis Major. One thing I love about this constellation is that it actually looks like what it's supposed to be, as opposed to his companion, the Little Dog, Canis Minor, which, directly above Canis Major, resembles more a tail than a complete animal. The only way you'll probably know you've found this pattern is by its bright star, Procyon.

Back to Orion's belt, but this time move straight up through Betelgeuse to the twin stars, Castor and Pollux, the heads of Gemini, the Fraternal Twins. Because they are just two stick-figure shapes, they are easy

to pick up, especially as, during their travels across the night, they do get almost overhead in our skies. Then, while you're there, look right, or west, to the large pentagon, Auriga, the Chariot Driver, with its brilliant Capella, a star that, if it were just a few more degrees north, would be circumpolar.

And now that you've reached Capella, draw a mental line from it to Castor, then to Pollux, left and down to Procyon, straight downward to Sirius, right to Rigel, right and upward to Aldebaran, then left to Betelgeuse. You've just made one of the larger asterisms in our sky, the Heavenly G. This shape is so easy to locate that, in our generally brightly lit skies, it may become so obvious that it will overcome the beauty of the constellations it is a part of. But, keep looking. The winter sky is too wonderful to pass up.



# 2010 Star Party Report

Bob Forgiel

Our events for 2010 started shortly after the grounds firmed up on **THURSDAY, APRIL 22ND 2010** Dave Huestis had 10 students from Bryant University visit Seagrave. He gave a short lecture in the meeting hall followed by viewing and questions. Afterwards, as part of their class, they were to write a summary of their visit. Dave forwarded us some copies of their reports and some were somewhat amusing. Many years ago, the Clark dome rotated on cannon balls. One student remembered this as bombs. I guess we should be careful when rotating the Clark/s dome.

**FRIDAY, APRIL 23RD, 2010, WOMAN'S WILDERNESS WEEKEND AT THE URI ALTON JONES CAMPUS.** The night started with a lot of mosquitoes but the event went well. They had probably around 40 women attend and they were already talking about having us back in October for their next weekend. We only had 5 volunteer for this event but we were still able to accommodate the group of around 40+ women in attendance.

**FRIDAY, APRIL 30TH, 2010 CHRISTIAN HOME EDUCATORS** visiting Seagrave They had been rescheduled numerous times due to clouds, winter conditions and even the roof replacement on the meeting hall. They finally caught a clear night and arrived on schedule. Since someone had taken the projector home to replace the bulb, we couldn't find the projector. We improvised by extending the night sky network material demonstrations until it was dark enough.

**SATURDAY, MAY 15TH, 2010** Society member Donna Gaumond's had some of her students from **METCALF ELEMENTARY SCHOOL** visit Seagrave. We had a number of people show up well before dark but they seemed content to just look around the facilities prior to the event. We probably had a total of around 60 people between the student visit and the regular public night crowd. We replaced the presentation with outside demonstrations of the night sky network material. We had all four of the society scopes running. Jim H. brought is scope and I also had my scope setup for a total of 6 scope. We also had the binocular table setup and a number of kids made use of it. We had around nine members attend including two of our newest members Penny and her daughter Amber.

**FRIDAY, AUGUST 27TH** was actually the rain date For **GOOSEWING BEACH PRESERVE IN LITTLE COMPTON RI.** This event was for the Nature Conservancy of Rhode Island. We had a good clear night and around 28 people attended. We setup in a grass field overlooking the water. The Moon and Jupiter came up just before 8:30 and we were able to catch Venus just after sunset. We setup a couple of scopes and the binocular table. We also did a basic demonstration of how a refracting telescope works using the night sky networks "glass & mirrors" toolkit. Afterwards, the Conservancy gave each of our volunteers a cloth bag with some information about them and their mission.

**TUESDAY, SEPT. 28TH** We needed to cancel our scheduled event at the Blithewold Mansion in Bristol, RI but I mention it here because we had such a good response from volunteers from both Skyscrapers and ASSNE. This event was to be for a group of VIP's from Ohio but we needed to cancel to clouds, wind and thunderstorms. The travel agent thanked us for trying and will contact us again during their next scheduled outing into Bristol.

**THURSDAY, OCTOBER 7TH, 2010** we had the **COVENTRY CHAPTER OF THE RHODE ISLAND GUILD OF HOME TEACHERS** visiting Seagrave. This was the home schooling group R.I.G.H.T. and we ended up with around 35 to 40 people. Jim H. setup his scope and had it on Comet 103P Hartley. It was passing very close to the double cluster in Perseus at approx 8th mag. Jim B had the 12" Meade open and was moving to several objects. I had my scope on Jupiter and we gave them a tour of the newly reconditioned Clark.

**FRIDAY, OCTOBER 8TH** we had students from the **BURRILLVILLE HIGH SCHOOL** visit Seagrave. We had at least 25 students and the events details are about the same as the previous night. We gave a short orientation to the group and also used some of the night sky network material that pertained to refractors, phases and how the eye processed objects in low light. We had a many visitors using the binocular table. More so than other events.

**FRIDAY, NOVEMBER 12, 2010** was the **CALLAHAN ELEMENTARY SCHOOL** Astronomy Night. I want to first start by thanking Dave

Huestis for coordinating this event. I was going to be away at the time of this event but I knew Dave had worked with them in the past. I was unable to attend but from what I was told, they caught a clear night and had a large number people attend.

**THURSDAY, DECEMBER 9TH** we again had Students from **BRYANT UNIVERSITY** visiting Seagrave. Member and Society Historian Dave Huestis had a small group of his students from Bryant University visit Seagrave. As part of their studies, Dave started their night with a short quiz in the meeting hall. They moved outside for viewing and had a chance to see the Clark.

**FRIDAY, DECEMBER 17TH** we held another **CUB SCOUT BET LOOP & PIN PROGRAM** at Seagrave. We had around ten students and fifteen Cub Scouts visit Seagrave. Jim Hendrickson had setup a scope outside and Jim Brenek had opened one of the back 12" scopes. I had given the scout presentation followed by some demonstrations and Jim Crawford helped them find constellations. Dave Huestis gave them a tour of the Clark and they all had the opportunity to look through our historic Clark.

In closing, we currently have a few more groups that are working out dates but at this point in December, we are done with events for this year. I want to thank all that have helped out this year with our outreach events as well as public nights. If Santa brings some cool astronomy stuff for you this year, be sure to have it ready as we pickup with our outreach events in 2011. Our current schedule has the next group visiting Seagrave on January 29th, I'll see you there!

Thanks again & happy holidays!  
Bob Forgiel  
Public Outreach Coordinator



# Astronomers Stumble onto Huge Space Molecules

By Trudy E. Bell and Dr. Tony Phillips

Deep in interstellar space, in a the swirling gaseous envelope of a planetary nebula, hosts of carbon atoms have joined together to form large three-dimensional molecules of a special type previously seen only on Earth. Astronomers discovered them almost accidentally using NASA's Spitzer Space Telescope.

"They are the largest molecules known in space," declared Jan Cami of the University of Western Ontario, lead author of a paper with three colleagues published in *Science* online on July 22, 2010, and in print on September 3.

Not only are the molecules big; they are of a special class of carbon molecules known as "fullerenes" because their structure resembles the geodesic domes popularized by architect Buckminster Fuller. Spitzer found evidence of two types of fullerenes. The smaller type, nicknamed the "buckyball," is chemical formula C<sub>60</sub>, made of 60 carbon atoms joined in a series of hexagons and pentagons to form a spherical closed cage exactly like a black-and-white soccer ball. Spitzer also found a larger fullerene, chemical formula C<sub>70</sub>, consisting of 70 carbon atoms in an elongated closed cage more resembling an oval rugby ball.

Neither type of fullerene is rigid; instead, their carbon atoms vibrate in and out, rather like the surface of a large soap bubble changes shape as it floats through the air. "Those vibrations correspond to wavelengths of infrared light emitted or absorbed—and that infrared emission is what Spitzer recorded," Cami explained.

Although fullerenes have been sought in space for the last 25 years, ever since they were first identified in the laboratory, the astronomers practically stumbled into the discovery. Co-author Jeronimo Bernard-Salas of Cornell University, an expert in gas and dust in planetary nebulae, was doing

routine research with Spitzer's infrared observations of planetary nebulae with its spectroscopy instrument. When he studied the spectrum (infrared signature) of a dim planetary nebula called Tc 1 in the southern-hemisphere constellation of Ara, he noticed several clear peaks he had not seen before in the spectra of other planetary nebulae.

"When he came to me," recounted Cami, an astrophysicist who specializes in molecular chemistry, "I immediately and intuitively knew it I was looking at buckyballs in space. I've never been that excited!" The authors confirmed his hunch by carefully comparing the Tc 1 spectrum to laboratory experiments described in the literature.

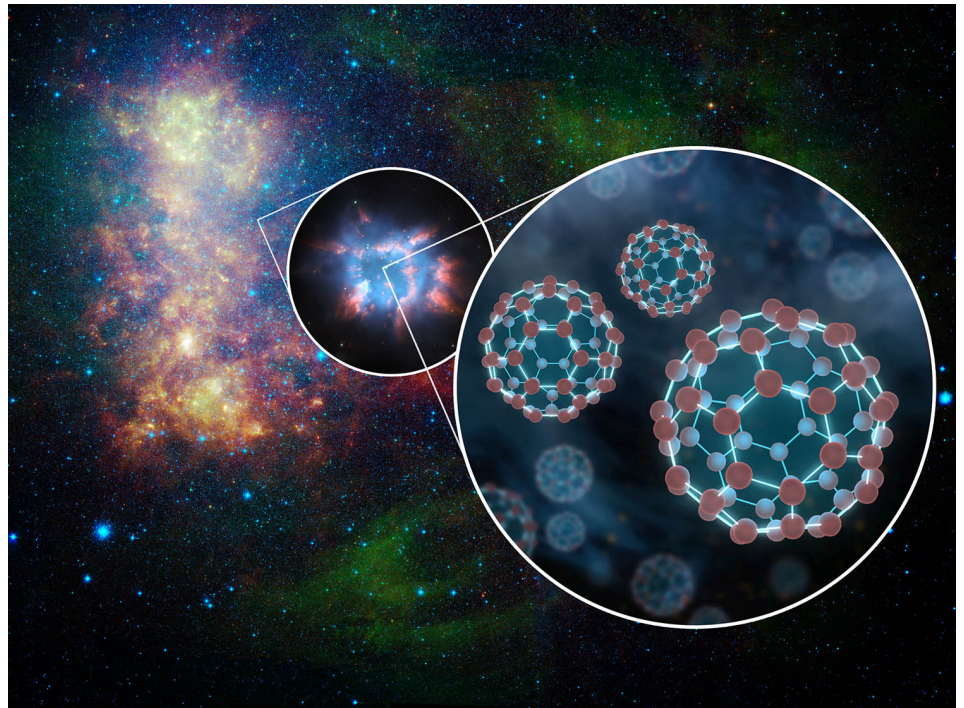
"This discovery shows that it is possible—even easy—for complex carbonaceous mole-

cules to form spontaneously in space," Cami said. "Now that we know fullerenes are out there, we can figure out their roles in the physics and chemistry of deep space. Who knows what other complex chemical compounds exist—maybe even some relevant to the formation of life in the universe!"

Stay tuned!

Learn more about this discovery at <http://www.spitzer.caltech.edu>. For kids, there are lots of beautiful Spitzer images to match up in the Spitzer Concentration game at <http://spaceplace.nasa.gov/en/kids/spitzer/concentration>.

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



Superimposed on a Spitzer infrared photo of the Small Magellanic Cloud is an artist's illustration depicting a magnified view of a planetary nebula and an even further magnified view of buckyballs, which consist of 60 carbon atoms arranged like soccer balls.

# Uranus

Glenn Chaple's  
Sky Object of the Month

What's your favorite planet? How about your top three? Most likely, Uranus isn't one of them. While it's hard to ignore the intriguing detail presented by Jupiter and Mars or the visual splendor of Saturn and its rings, Uranus possesses an ethereal beauty that none of them can match. Its almost mystical bluish hue stands out in stark contrast to the dark background sky. To me, Uranus is reminiscent of similarly-hued planetary nebulae like NGC 7662 (the "Blue Snowball") in Andromeda.

Although it inhabits the outer reaches of the solar system, Uranus is bright enough

to be viewed with binoculars and small telescopes. With a magnitude of +5.8, it can even be viewed with the unaided eye under ideal dark-sky conditions. To see the planet's tiny 4 arc-second disk, equal to the apparent size of a golf ball 1.3 miles away, you'll need a telescope that can handle magnifying powers in excess of 100X.

If you've been avoiding Uranus because it's harder to locate than the bright naked eye planets, you're in luck. Since mid-2010, Uranus has been undergoing a triple conjunction with Jupiter. The final stage of this cosmic dance is about to commence. During

the waning days of 2010 and first week of 2011, Jupiter and Uranus will be close enough to view together in a one-degree-wide telescopic field.

This month (January 24th, to be precise) marks the 25th anniversary of the historic flyby of Uranus by the Voyager 2 spacecraft. Celebrate the event with your own visit to the seventh planet.

Your comments on this column are welcome. E-mail me at [gchaple@hotmail.com](mailto:gchaple@hotmail.com)



Photo of Taurus showing the Pleiades Cluster (top) and the Hyades cluster. Photo taken by Tom Thibault on December 25th in New Hampshire using a Sony camera at f/2.8 and 25 second exposure.

Ed Haskel, *Secretary*  
 Jim Crawford, *Treasurer*

# December Reports

**NOVEMBER MEETING MINUTES  
 SATURDAY, DECEMBER 4, 2010  
 SEAGRAVE OBSERVATORY**

Secretary and Treasurer Reports, no changes from floor.

Trustees — Nothing to report.

The Librarian was not present.

Historian Dave Huestis reported there was no new history.

Bob Forgiel reported on numerous upcoming public observing sessions both at Seagrave Observatory and schools serving a projected total of more than 200 people.

**Old Business**

New members were introduced: Chris Atsales and Robert Duncan. Dave Huestis sponsored Alex Bergman for membership and recommended the 13 year old lower limit for membership be waived due to



Alex's exceptional interest in astronomy. Dave read a truly remarkable letter of recommendation of Alex by retired Astronaut Col. Woody Spring. No one voiced an objection to accepting Alex to full membership.

For the Good of the Organization

Certificates of appreciation for several outstanding members' work to refurbish the Clark and buildings were presented to Al Hart, Francis O'Reilly, Jim Hendrickson, Steve Siok, Dick Parker, Bob Horton, Dave Huestis, Jim Brenek, Steve Hubbard, Gene and Barbara Kusmierz, Tom Thibault.

Dues are still being accepted.

Adjourned at 9:36 pm.

**Cash Flow**  
 11/24/2010- 12/16/2010

**INFLOWS**

Interest Inc \$14.53

**TOTAL INFLOWS \$14.53**

**OUTFLOWS**

Clear Sky Chart \$50.00

Astronomymagexp \$34.00

Refreshment Expense \$33.65

Trusteexp \$36.14

Utilities: Electric \$12.71

**TOTAL OUTFLOWS \$166.50**

**OVERALL TOTAL -\$151.97**

**Cash Accts**

Citizens Checking \$1,941.99

Capital One \$16,455.78

**Total \$18,397.77**



Photo of Orion taken by Tom Thibault on December 25th in New Hampshire using a Sony camera at f/2.8 and 25 second exposure.



# Membership Survey Tom Thibault

Dear Fellow Skyscrapers,

In a continuing effort to provide our membership enhanced value and access to our wonderful equipment and facilities at Seagrave Observatory, we would like to organize Members' Night Activities throughout the year.

Realizing we have a diverse group with varied skill levels and interests, we value your input to better understand our membership's needs. We can then develop activities and tailor our sessions accordingly.

Please take a few minute or two of your time to help us determine what astronomical topics you would like to see incorporated as part of these members' enrichment programs, so appropriate teaching, training and observing sessions can be developed.

## Number of years with an interest in astronomy?

- 0-5 years
- 6-10 years
- 11-15 years
- 16 and more

## Number of years as a Skyscrapers member?

- 0-5 years
- 6-10 years
- 11-15 years
- 16 and more

## Astronomical interests (multiple selections accepted)

- Mythology
- History
- Naked eye viewing
- Meteor showers
- Comets and asteroids
- Moon and planetary
- Solar
- Double Stars
- Variable Stars
- Deep space objects
- Photography
- Telescope making
- Other

## Would you be interested in participating in Member Night Activities?

- Yes
- No
- Maybe

## Best Evening for you to participate in activities (Multiple selections accepted)

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

## What would you be interested in increasing your knowledge of (multiple selections accepted).

- Mythology
- History
- Naked eye viewing
- Meteor showers
- Comets and asteroids
- Moon and planetary
- Solar
- Double Stars
- Variable Stars
- Deep space objects
- AstroPhotography
- Telescope making
- Other

## Are there subjects not listed above that you feel may be of interest to you and others?

Please provide any thoughts below that you may have in regards to activities you feel may be of membership interest that should be considered for Members' Night Activity.

# 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.
- 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