



The Skyscraper

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December 2009

Amateur Astronomical Society Of Rhode Island • 47 PeepToad Road North Scituate, RI 02857 • www.theSkyscrapers.org



Seagrave Memorial Observatory is open to the public weather permitting



Saturdays 7pm - 9pm






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

See www.theSkyscrapers.org 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.

December 2009

	2 Full Moon
	8 Last Quarter Moon
13	Geminids meteor shower peaks
	16 New Moon
18	Mercury at greatest Eastern elongation (20°)
19	Jupiter 0.6°S of Neptune
21	Mars is stationary
21	Winter Solstice
22	Ursid meteor shower peaks
	24 First Quarter Moon
	31 Full Moon

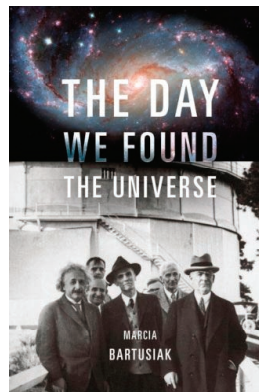
Holiday Party & Meeting with Marcia Bartusiak

Saturday, December 5th
at North Scituate Community Center

Skyscrapers is pleased to have Prof. Marcia Bartusiak as our monthly meeting speaker. She will be speaking about her most recently published book, *The Day We Found the Universe*.

Combining her training as a journalist with a master's degree in physics, Marcia Bartusiak has been covering the fields of astronomy and physics for three decades. She is currently a professor of science writing at the Massachusetts Institute of Technology and has published in a variety of publications, including *Science*, *Smithsonian*, *Discover*, *National Geographic*, *Sky & Telescope*, and *Astronomy*. She is the author of *Thursday's Universe*, a guide to the frontiers of astrophysics; *Through a Universe Darkly*, a history of astronomers' quest to discover the universe's composition; and *Einstein's Unfinished Symphony*, a chronicle of the international attempt to detect cosmic gravity waves. All three were named notable books by the *New York Times*. She went on to write *Archives of the*

Universe, an anthology and commentary on the historic discovery papers in astronomy, and most recently *The Day We Found the Universe*, on the birth of modern cosmology. Bartusiak is a two-time winner of the American Institute of Physics Science Writing Award and in 2006 garnered the AIP's prestigious Gemant Award for her "significant contributions to the cultural, artistic, or humanistic dimension of physics." In 2008 Bartusiak was elected a Fellow of the American Association for the Advancement of Science, cited for "exceptionally clear communication of the rich history, the intricate nature, and the modern practice of astronomy to the public at large." Bartusiak lives with her husband, mathematician Steve Lowe, and their dog Hubble in a suburb of Boston.



The Day We Found the Universe: A dramatic narrative of the discovery of the true nature and startling size of the universe, delving back past the moment of revelation to trace the decades of work—by a select group of scientists—that made it possible. On January 1, 1925, thirty-five-year-old Edwin Hubble announced findings that ultimately established that our universe was a thousand trillion times larger than previously believed, filled with myriad galaxies like our own. It was a realization that reshaped how humans understood their place in the cosmos. Six years later, continuing research by Hubble and others forced Albert Einstein to renounce his own cosmic model and finally accept the astonishing fact that the universe was not immobile but instead expanding. The story of these interwoven discoveries includes battles of will, clever insights, and wrong turns made by the early investigators in this great twentieth-century pursuit. Here is the watershed moment in our cosmic history, splendidly arising from the exceptional combination of human curiosity, intelligence, and enterprise.

NOTE: Marcia will be available after the talk to sign her books. For those who do not already have a copy of her book(s), she will have some available for purchase at \$20 per copy.

President's Message

Bob Horton

The December meeting and holiday party will be held on Saturday, December 5th at the North Scituate Community House. The festivities will begin at 7:00 pm. As we have done so enjoyably in the past, this will be a "potluck" style party, so we ask that everyone bring a favorite food item to share. We'll supply coffee, hot chocolate, apple cider, and some pastry. Just let me know what food item you plan to bring so that our efforts will be coordinated and we don't end up with too much of any one item. You can contact me via e-mail at stargazerbob@aol.com or call me at 401-556-8091.

The winter months are upon us now, along with some fun observing activity.

We recently had a successful CCD Imaging Workshop at Seagrave Observatory. About a dozen members spent a couple of hours learning how to use a CCD camera on our 16" Meade telescope. We were able to take a number of nice images that can now be seen on our web site. We plan on offering more opportunities throughout the winter for any member of Skyscrapers to collect CCD images of your favorite celestial objects. You'll also learn how to make your images really look great using image processing techniques.

The planet Mars will be at opposition in late January. Although this opposition does not bring Mars close to the Earth, the planet will be visible high above the horizon, allowing for higher magnification to be used. One of my favorite observing activities has been making a series of drawings

whenever Mars is well placed for viewing, something I have been doing for years now. Providing that the seeing conditions are good, and that you use the best optics, it really is amazing how much detail you can observe on the red planet. I highly recommend sketching the planet because it trains you to look for the finest detail visible. While we can't be guaranteed of good weather, we do have the fine optics of our 8 1/4" Alvan Clark refracting telescope to provide us with some nice views of Mars.

In collaboration with Brown University's Physics Department, we also plan to have a stellar spectroscopy workshop sometime in January. I'll have more information on this workshop in the next newsletter.

With the close of the year approaching, I want to take this time to thank everyone that has volunteered for our public outreach programs during the past year. The Observatory Committee is looking to expand its ranks, and if you're interested in becoming a key holder and helping out with our Saturday night public programs, please contact one of the Trustees or see me at the meeting.

I wish all of you the very best this holiday season.

Clear Skies,
Bob Horton



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 December 18** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or email to jim@distantgalaxy.com.

Email subscriptions

To receive *The Skyscraper* by email, send email with your name and address to jim@distantgalaxy.com. Note that you will no longer receive the newsletter by postal mail.

Executive Committee Meeting

Wednesday,
December 2 @ 7pm
Seagrave Observatory
All Members Welcome

CCD Imaging Workshops

Saturdays at Seagrave Observatory

For more information including a schedule of events contact:
stargazerbob@aol.com
or call 556-8091

Avoiding the “Trash Scope” Trap

Craig Cortis

Here we go with another article that experienced amateurs can ignore – this is intended for readers who might not feel knowledgeable enough to make a wise purchase of a first-time telescope, or who are considering buying a scope as a gift for another person, particularly a child. We give gifts at other times of the year, of course, but Christmas is probably the biggest occasion for astronomy-related gift purchases. This is also the season when you’ll see the most ads or merchandise displayed in stores that carry optical equipment. Stores that cater mainly to amateur astronomers are rare in these parts and usually involve a lengthy drive to reach. This means that if you’re not doing catalog or online shopping, you might be inclined to patronize one of the big camera “superstores” or discount “box” stores. If so, here’s one of the best pieces of advice that you are likely to get regarding buying a telescope or binocular, assuming you’re not sure how to make a good choice on your own: Beware the low-priced “trash” scope or binocular that so many end up buying! Such things only serve to discourage budding observers and are, in effect, worse than useless.

How do I define one of these? 1) PLASTIC lenses! Believe it or not, there are items out there that may not seem to be just toys but actually have plastic lenses, so make sure your choice does not. 2) Inferior grade coatings on lenses, or – amazingly – NO coatings at all. Don’t choose any instruments to be used for astronomy with anything less than MC as a rating; this means multicoated. (FMC, meaning fully multicoated, is another step higher in light transmission and antireflectivity, but will cost more.) MC coatings are adequate but never buy anything rated simply as C. Coatings on lenses have distinct shades of color when a scope or bino is held beneath a light and viewed from a side angle. Absence of color indicates no coating at all, pale steel-blue might indicate a “C” rating *only*, distinct greenish-blue means better quality (MC), and deep greenish-violet usually indicates a higher level of coating, FMC. In general, the deeper the

color, the better. Regarding binoculars, *never* buy anything having red (so-called “ruby”) coatings or amber/gold-tinted coatings – this is a certain indication of inferior, unsuitable instruments that don’t satisfy the viewing requirements of astronomy. (Be sure to read item #9 thoroughly for more references to binoculars.) You’d do well to choose a *fixed-power* (not “zoom”) model of at least 35mm aperture up to 50mm, with a magnification of anywhere from 7x up to 10x. Also, the “eye relief” distance rating is critical and should be at *least* 15mm; anything longer is better still.

3) Plastic drawtube, focuser, or star diagonal components. These parts should be made of metal, ideally, although certain high-impact plastics are adequate for the part of the focuser or star diagonal into which the eyepiece is inserted. If in doubt as to quality of the plastic used on this specific part, insist on metal. (Plastic adjustment, locking, or control knobs elsewhere on a scope are fine, generally. Many manufacturers use them to keep costs down, although I’d be more comfortable with metal on any LOCKING knobs.)

4) Flimsy, shaky, spindly, jittery, etc. mounts and tripods. Cheap, inadequate scopes almost invariably are furnished with such mountings, making the scope unusable – I repeat, unusable – for astronomy purposes. If a mount head doesn’t have smooth motions, but operates in a “rattling” excess play fashion, it’s no good. If a tripod is so weak and unstable that 15 or 20-power magnification is your limit for seeing anything with a reasonably steady image, then it’s inadequate.

5) Small aperture refractors or Newtonians with focal lengths sufficiently long so as to make the optical tube considerably *longer* than it is wide. What’s the problem here? Simple: Quite often, such scopes *lack* an altitude-adjustment/locking bar and you might as well be playing with a tripod-mounted see-saw! (Reflectors on Dobsonian mounts don’t need this part.) I’ve been exasperated for years upon coming into contact with outrageously bad excuses for telescopes that have utterly no provision for holding the

tube firmly in altitude. On a tripod-mounted scope of a certain general range in length, you’ve absolutely got to have the capability of keeping the tube pointed steadily in altitude, as well as make convenient and positive slight adjustments up-and-down. This is why the altitude bar (or shaft) I’m mentioning here is so critical for long-focus small scopes, such as an f/11 60 or 70mm aperture refractor. Over-tightening the main attachment knobs never works reliably and can easily damage the optical tube itself; besides, how can you possibly make small changes to the altitude alignment quickly and easily? Answer is, you *can’t!*

I could devote an entire article to my item #5, but let me impress upon you just two final points about the importance of an altitude-adjustment bar. First, it’s an outright shame that even big-name scope companies actually market these unusable telescopes; you’d think experienced outfits would recognize such problems and be willing to raise prices a bit so that necessary features like this are not omitted from their offerings. Second, you can verify presence of an altitude bar by seeing if a metal shaft about 1/4” in diameter and roughly a foot long is attached on a pivot stud at the rear end of the optical tube, at the side. (The bar’s front end simply slides through a hole in another pivot stud mounted alongside the mount head.) The pivot stud on the mount head should have a locking screw or knob which, when snugged up, will hold the bar in place firmly and thus also the optical tube in altitude. There should be a threaded knob or screw at the *rear* end of the bar which, when turned, either lengthens or shortens the bar’s length slightly. This, in turn, has the effect of raising or lowering the scope’s altitude in a controlled, slow-motion manner, provided the locking knob on the mount head is tight. (You loosen *that* knob to permit the bar to slide freely through the hole when manually moving the scope in altitude. Azimuth motions are not affected by gravity and therefore can be made without a locking

provision, although decent mounts will have azimuth-locking knobs included.) German equatorial mounts do not involve an altitude-adjustment bar.

6) Refractors smaller than 60mm aperture are suspect—such small size usually indicates cheap overall quality, although there do exist some expensive, high-end scopes of 50mm size. Make your lower aperture limit 60mm, for refractors. If you can afford 70mm or larger, better still. 7) Don't buy a scope having its basic eyepiece/focuser size less than 1¼" in diameter—this is now standard. (Many scopes now come with 2" focusers, actually.) If a scope has, for example, 0.965" eyepieces, it's a problem! Insist on 1¼" diameter and you'll save yourself some grief. We'll skip lengthy explanations. 8) Avoid telescopes or binoculars priced way low, under \$100 or so for scopes or \$60 for binoculars. There are very few exceptions to this rule.

9) I have not fully covered binoculars in this piece, important as they can be. Many people would be better off using a binocular as a starter instrument for stargazing. I refer you to the two-part article on binoculars for astronomy that appeared in the November 2008 and January 2009 issues of this newsletter, entitled "Sometimes Binoculars are Best." I wrote about many distinguishing features by which a binocular can be judged, as well as why binoculars are sometimes superior to telescopes for certain kinds of amateur astronomy. Regarding a dead giveaway characteristic by which you'd know immediately that a particular binocular is *not* one you should buy (in addition to aforementioned plastic lenses), steer clear of any bino having its body/shell or any *other* major components made of plastic. The popular rubber coatings so common these days are fine—the metal body is simply encased by the coating. Imitation grained "leatherette" wrappings around a metal body are equally acceptable, but a binocular which appears to be made primarily of plastic is definitely *not*. Cheap toys are one thing, but reasonable quality optical instruments are quite another.

10) Watch out for splashy, garish blurbs marked on telescope boxes or packaging, the ones that claim you'll be able to see things at "500x power." This is nonsense; figure about 150x as

a maximum realistic magnification in most small instruments. If you get a "fast" scope having a very short focal length (400-500mm), the highest you can generally go is around 50x. Believe it or not, even in longer focal length scopes you'll have much better luck sticking with eyepieces that yield 25x to 35x. (Divide the scope's focal length by the number marked on an eyepiece to obtain the magnifying factor. Example: A scope has a focal length of 700mm and comes furnished with two eyepieces, one being 26mm and the other 10mm. 700 divided by 26 = 27 power, 700 divided by 10 = 70 power.) This is all you need to enjoy most of what stargazing in a telescope can offer you. In a future article I'll explain in depth why, in many (but not all) cases, extreme magnification is a tremendous *detriment* to an inexperienced amateur astronomer's efforts to locate and satisfactorily observe celestial objects.

By the way, if a scope you buy comes with a Barlow lens, forego attempting to use it until such time as you feel capable of attaining adequately steady images when *doubling* the power yielded by any given eyepiece. Believe me, you'll quickly see what I mean when you experiment on your own. Unfortunately, some telescope companies understand all too well that the uninitiated customer likely believes that ultra-high magnification is the be-all and end-all of astronomical observing. To that end, they want to "hook" you into buying cheap stuff that's advertised so as to highlight a much-overrated feature that just *won't* work realistically; such companies figure many folks will simply be unaware of true aspects of quality when looking over their products and will buy scopes just because an item is touted as magnifying things seen by hundreds of times. Whatever you do, *don't* fall for this trap!

I can't say as I'd blame readers who might think that they'd never be able to spot *all* the potential poor quality indicators I've described thus far. After all, products sold in many larger stores come packaged (naturally) in boxes, so how will you be able to thoroughly check them out in the store? If at all possible, try to enlist the help of a friend or fellow club member who genuinely understands astronomy equipment,

even if it takes a little effort to make this happen. I have not unnecessarily stressed nor exaggerated any points made in this article, and I'll sincerely hope that none of you end up being disappointed by buying one of these "trash" scopes or binoculars that are out there waiting for the ill-informed, unwary shopper. Catalog or online browsing? Get that knowledgeable astronomy buddy to look over the information with you *before* taking the plunge and you'll be far better off. This is important and should not be taken lightly, so best of luck to all concerned.

Things to look for when buying a beginner-level telescope:

- * All-glass optics
- * Solid mounting with smooth motions
- * 1¼-inch focuser & eyepieces

For refractors:

- * Anti-reflection coatings on optics (deep green/violet color is best)
- * Altitude locking bar
- * Aperture 60mm or greater

Things to avoid

- * Super cheap scopes
- * Exorbitant magnification claims

2009 Leonids Observing Report

Dave Huestis

One researcher of the Leonid meteor shower predicted an increase in activity for the 2009 display. Asia was to experience 150 to 200 meteors per hour at peak, while here in the US we would only observe 20 to 30 meteors per hour on November 17, sometime between 1:30 am and dawn.

While that number of meteors is not spectacular, it would be better than the normal non-storm year Leonid peak of from 10 to 15 meteors per hour.

Monday night the 16th we had a star party out at Seagrave Observatory for a cub scout pack working on an astronomy merit badge. Though I was in the dome of the Clark refractor, I would frequently walk out on the deck to see if I could catch a glimpse of an early Leonid. (Leo didn't rise above the eastern horizon until around midnight, so I really didn't expect to see many, if at all.) And my expectations were realized. And no one out on the property saw any either.

After the scouts left, Jim Hendrickson and I sat on the east facing benches outside of the meeting hall, chatting about this and that topic in astronomy. All the while we were gazing towards

the eastern sky, hoping to see a meteor or two. Some scattered clouds did pervade the sky, but a clear hole remained above us for quite a while. However, thicker clouds to the north and west began to roll in and we packed up and went home.

I arrived home around 11:00 pm. The sky had scattered clouds, but there were few holes between them. It was still too early, in my opinion, to seriously begin observing, so I set my alarm for 1:30 am and caught a few winks.

At 1:30 many of the clouds had disappeared, so I went out on my porch, which faces east, and began my quest for a few Leonids. I had my back to my house and was able to scan from the east to zenith, and from the north to the south along my meridian. The temperature was 44 degrees F. Soon all the clouds vanished, and my limiting magnitude was between 5.5 and 6.0. And it was nice once again to see Mars, about 6 degrees east of M44, the Beehive Cluster.

One Leonid of about 1st magnitude appeared to the east of Betelgeuse, leaving a two second train of dust behind it. Not bad. Much later a bright

Leonid, perhaps as bright as Jupiter, shot about 15 degrees to the west of Sirius. I saw it disappear below my tree line to the south. These were the highlights.

I observed until 3:20 am. The infrequent activity forced the early retirement issue, but I was tired anyway. Unless something wonderful happened between that time and dawn, we did not get the predicted enhanced peak rate here. Over the almost two hour timeframe I observed only 10 Leonids and 5 sporadics.

Regardless, I don't regret spending some quality time out there under the stars, shooting or otherwise! So many of the major meteor showers are clouded or mooned out that I try to take advantage of every favorable opportunity when I am able.

And now I am getting psyched up for the Geminids on the night of the December 13-14, when a moon free and hopefully cloud free sky will reward us with 60 to 100 meteors per hour. That shooting star display is one you won't want to miss!!

An Early Holiday Gift from the Sky Gods

Dave Huestis

December can be quite snowy and cold around southern New England. But I'm hoping Mother Nature will cooperate and allow stargazers to observe the most reliable and consistent meteor shower the Earth encounters on its year-long journey around our Sun. That shower of shooting stars, called the Geminids, peaks this month on the night of December 13-14 (a Sunday night to Monday morning). And all the conditions are ideal for observing them this year, provided the skies are clear.

What must one do to maximize your chances of observing perhaps 60-100 meteors per hour on peak night? First you need to select an observing location as far away from light pollution as possible. Second, you've got to stay warm and comfortable. Use a chaise

lounge covered with a blanket. On top of that place a sleeping bag. If it's really cold you may have to place another heavy blanket on top of that. Third, dress warmly with several layers and include woolen socks, mittens and a good warm hat. Fourth, zip yourself into the sleeping bag and point yourself in the general direction (east) of Gemini. Fifth, keep a thermos of hot chocolate or coffee handy. Sixth, don't observe alone.

Once you and your friend(s) get settled in you can begin your observing experience. Unlike some of the other major meteor showers, the Geminids can be observed early in the evening. Why? Gemini, the constellation from where the shooting stars appear to radiate from, is about 30 degrees above

the eastern horizon by 9:00 pm. Though the radiant, near this constellation's bright stars Castor and Pollux, is visible all night, peak activity is predicted for midnight.

If you start your observing run around 9:00 pm you should notice the number of meteors increasing to the midnight hour. They may remain at peak for about an hour or so, but will then diminish as each hour passes by thereafter. Do not stare directly at Gemini. Rather, scan as much of the sky as possible, even turning your head and scanning above and behind your normal field of vision. You might get a stiff neck, but the rewards will be worth it.

You'll know you've seen a Geminid if you can trace the path of the

meteor trail back to the radiant point in Gemini. These meteors are fairly bright and moderate in speed, hitting our atmosphere at 21.75-miles per second. They are characterized by their multicolored display (65% being white, 26% yellow, and the remaining 9% blue, red and green). Geminids also have a reputation for producing exploding meteors called fireballs.

So if Mother Nature is kind to us on the night of December 13-14, I hope you will spend time out under the stars to look for some beautiful meteors to blaze across the sky. For stargazers of all ages it will be an early holiday gift from the sky gods.

A week later on December 21, the Sun will have reached its most

southerly position in our northern hemisphere sky. It's an event called the Winter Solstice, occurring this year at 12:47 pm EST. Despite the fact that with each passing day afterwards the amount of daylight will be increasing, it takes some time for the climate and weather systems to catch up to provide us more warmth.

And one additional astronomical tidbit to note, December has two Full Moons. The first occurs on the 2nd, while the second one occurs on the 31st, thereby making that second one a so-called "blue moon."

Please note that Seagrave Observatory in North Scituate will be closed on Saturday, December 5. Also refer to our website at <http://>

www.theskyscrapers.org for snow/ice cancellations. The observatory remains open if snow or ice does not make the parking lot inaccessible or the grounds impassable.

Should Seagrave be closed, you might visit Ladd Observatory (<http://www.brown.edu/Departments/Physics/Ladd/>) in Providence. Ladd is open every clear Tuesday night during the winter months from 7-9 pm, weather permitting. Since parking is available on-street, only a parking ban or icy conditions would close the facility. Check out the Ladd website for any cancellations.

Happy holidays and good observing.

Ursid Meteor Shower

Glenn Chaple

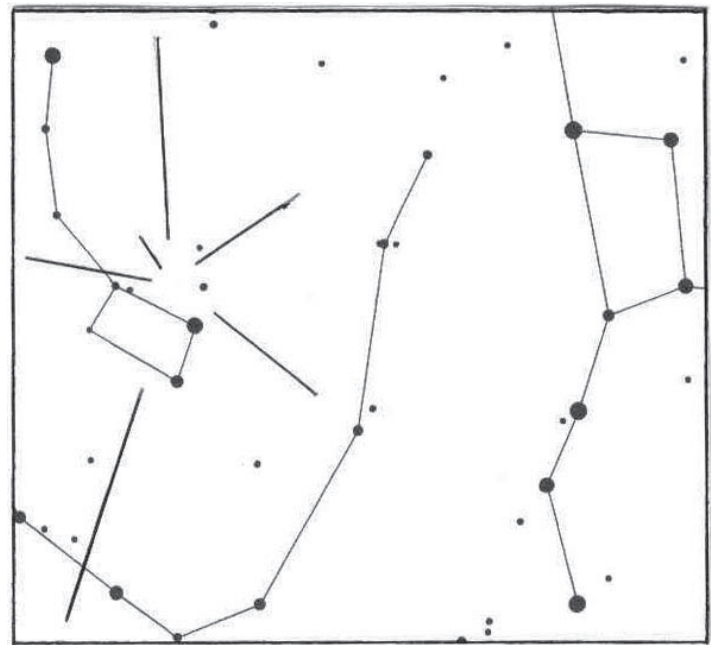
You're quite likely familiar with the Geminid meteor shower. One of the year's most prolific, with hourly rates often exceeding 100 meteors, the Geminids reach peak activity on the evening of December 13-14. With the moon close to new phase, the 2009 Geminid display should be spectacular.

Less known is a meteor shower that occurs about a week later—the Ursids. Discovered a little over a century ago, the Ursids are associated with the comet P8/Tuttle. There are two reasons why this meteor shower is so little observed. For one thing, it's rather sparse. Although there have been reports of short outbursts of 100 Ursids per hour, the hourly rate rarely reaches double figures. Couple that with the fact that the Ursids climax near the peak of the Holiday season (predicted maximum activity is scheduled for the evening of December 21-22), and you have a meteor shower few backyard astronomers have ever observed.

That includes me. In years

when I've made plans to view the Ursids, either clouds or a bright moon got in the way. Other times, I got so wrapped up in Holiday hysteria, I either forgot or was too tired to bother. On the one clear, moonless evening I did give the Ursids a try, I saw virtually nothing for 15 minutes, got bored, and went back inside—behavior NOT worthy of a so-called avid amateur astronomer!

Here's my game plan for Ursids 2009—one that I encourage you to try. Some time towards the middle of the night when the waxing crescent moon has set, I'll bundle up and go outside with a thermos of hot chocolate. Since the Ursids appear to radiate from the vicinity of the star Kochab (β Ursae Minoris) I'll set up a lawn chair in a part of my backyard that affords a clear view of the northern sky. Then I'll sit and wait. No copping out after a quarter hour! I'll watch for at least an hour, or until I've spotted 5 or 6 Ursids, whichever comes first. Who knows—I might be fortunate enough to catch one of those rare Ursid outbursts. It's



Radiant for Ursid Meteors
From Cartes du Ciel

the uncertainty of meteor showers that makes them so fascinating.

Want to know more about the Geminids and Ursids? Check out Gary Kronk's www.meteorshoweronline.com. And don't forget the section on meteor showers in Guy Ottewell's

annual publication *Astronomical Calendar*.

Your comments on this column are welcome. E-mail me at gchaple@hotmail.com.

A Cosmic Crash

by Patrick Barry and Dr. Tony Phillips



Two small planets hurtle toward each other at 22,000 miles per hour. They're on a collision course. With unimaginable force, they smash into each other in a flash of light, blasting streams of molten rock far out into space.

This cataclysmic scene has happened countless times in countless solar systems. In fact, scientists think that such collisions could have created Earth's moon, tilted Uranus on its side, set Venus spinning backward, and sheared the crust off Mercury.

But witnessing such a short-lived collision while pointing your telescope in just the right direction would be a tremendous stroke of luck. Well, astronomers using NASA's Spitzer space telescope recently got lucky.

"It's unusual to catch such a collision in the act, that's for sure," said Geoffrey Bryden, A cosmic Crashspitzer_an astronomer specializing in extrasolar planet formation at NASA's Jet Propulsion Laboratory and a member of the science team that made the discovery.

When Bryden and his colleagues pointed Spitzer at a star 100 light-years away called HD 172555, they noticed something strange. Patterns in the spectrum of light coming from nearby the star showed distinctive signs of silicon monoxide gas — huge amounts of it — as well as a kind of volcanic rock called tektite.

It was like discovering the wreckage from a cosmic car crash. The silicon monoxide was produced as the high-speed collision literally vaporized huge volumes of rock, which is made largely of silicon and oxygen. The impact also blasted molten lava far out into space, where it later cooled to form chunks of tektite.

Based on the amount of silicon



Artist's rendering of cosmic collision involving two objects whose combined mass was at least twice that of our Moon. Discovered using the Spitzer Space Telescope in the planetary system of a star called HD 172555 100 light-years away.

monoxide and tektites, Bryden's team calculated that the colliding planetary bodies must have had a combined mass more than twice that of Earth's moon. The collision probably happened between 1,000 and 100,000 years ago — a blink of an eye in cosmic terms.

The scientists used the Spitzer space telescope because, unlike normal telescopes, Spitzer detects light at invisible, infrared wavelengths.

"Spitzer wavelengths are the best wavelengths to identify types of rock," Bryden says. "You can pin down which type of rock, dust, or gas you're looking at."

Bryden says the discovery provides further evidence that planet-altering collisions are more common in other

star systems than people once thought. The "crash-bang" processes at work in our own solar system may indeed be universal. If so, Spitzer has a front row seat on a truly smashing show.

See Spitzer Space Telescope's brand new Web site at <http://spitzer.caltech.edu/>. Kids can learn about infrared light and see beautiful Spitzer images by playing the new Spitzer Concentration game at <http://spaceplace.jpl.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.

November Meeting Notes

Jim Crawford

E-Board Meeting

Wednesday, November 4, 7:00pm
Ladd Observatory

1) Membership guide: Dave Huestis has been putting together a membership guide that can be given out to new members. We will review what has been written so far. Hopefully, this guide will be ready for distribution within a couple of months. Jim Hendrickson will provide an electronic copy of the membership guide that Bob Horton will distribute to all of the members of the E-Board.

2) New sign to be posted near the inner stone wall: Tom Thibault has been put in charge of designing the new sign, but he needs input from us for the information that will be posted. We have discussed this some at previous E-Board meetings, and we were all supposed to come up with some ideas. Please write some notes that you think should be on the new sign (information about our organization; our open nights; rules - such as warnings about trip hazards, no laser pointers allowed...) Tom Thibault reports that the sign will be approx. 2 foot x 4 foot and cost about \$250. Discussion concerning content - consensus is that we should keep it simple - basic information about Seagrave, rules, a simple map. Hope to finalize at the next E-Board

3) Observatory Committee: E-mail signups for Saturday nights seem to have become ineffective. How do we go about getting key holders more involved? This will be a joint discussion with the trustees. Trustees decided to hold an Observatory Committee meeting on Saturday, Nov 14th at 6pm

4) Concerns about videotaping and flash photography during meetings. It was agreed by members of the E-Board that we will allow only authorized videotaping, and only after getting permission from the speaker ahead of time. The President will make announcements before each monthly meeting that there is to be no videotaping or flash photography during the presentations, and that everyone should turn off their cell phones to avoid any disturbance.

5) Review of AstroAssembly expenses and income. How did we do this year, especially considering the rainy weather we had and the downturn in the economy? Vice President Steve Hubbard reported a

profit of about \$1,000.

6) Review of current membership list: We have approximately 30 members that have not paid their dues for this year. The Secretary will review the list of members, and provide the President with an accurate list of unpaid members.

7) December meeting and Christmas party: No budget for food, so we will promote a potluck style party. We'll need volunteers.



Monthly Meeting

Friday, November 6, 2009 7:30 p.m.
North Scituate Community Center

Bob Horton welcomed all members.

November Speaker: Rick Lynch, a long-time member, a 32-Degree Mason, and a historical researcher. Rick presented details of his research about Astronomy, Templars and Freemasons. Recent documentaries, books, and movies have inspired new interest in the Templars and their descendents; The Freemasons. What is not known is that Astronomy was a major part of the foundation of these societies and continues to be today. Rick's lecture shows the prominent role of astronomy in the religious concepts as well as show, the great medieval churches were all constructed with astronomical alignments as part of their layout.

Secretary's Report: October report accepted by membership.

Financial Report: October report submitted with no corrections.

1st VP Bob Napier: The December speaker will be Marcia Bartusiak from MIT. She will present a talk on "The Day We Found The Universe.

Treasurer's Report

10/25/2009 through 11/21/2009

Lloyd Merrill

INFLOWS

Dues	
Regular	80.00
Senior	10.00
TOTAL Dues	90.00
Interest Inc	13.83
TOTAL INFLOWS	103.83

OUTFLOWS

Astrorestroom	175.00
Refreshment Expense	25.24
Trusteexp	2,450.00
Electric	8.22
TOTAL OUTFLOWS	2,658.46

OVERALL TOTAL **-2,554.63**

Banking Accounts

Citizens Bank Checking	4,828.08
Capital One Money Market	16,288.46
Total Cash	21,116.54

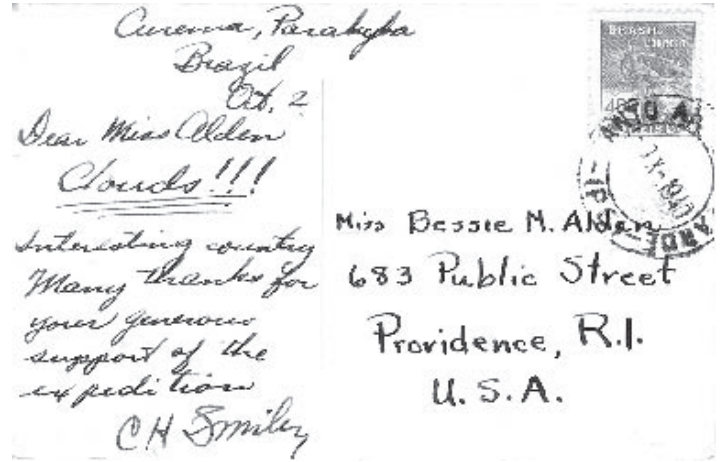
2nd VP Steve Hubbard: Reported that despite the rain, AstroAssembly still turned out to be a great day. We received many comments on how well everything went. Steve expressed his appreciation to all those who participated in making this year's AstroAssembly a great success.

Historian Dave Huestis: Is continuously looking for any and all historical documents related to Skyscrapers. Dave recently received correspondence from John and Pat Hollinrake of the UK. They donated a post card dated October 2, 1940 from Dr. Charles Smiley to Bessie Alden. His note: "Clouds!!! Interesting country. Many thanks for your generous support of the expedition." Dr. Smiley was referring to his eclipse expedition to Curema, Brazil for the Oct 1, 1940 total solar eclipse. Dr. Smiley and Arthur Hoag were the only members of Skyscrapers/Brown to attend this trip. The full membership expresses our appreciation and thanks to John and Pat for donating the post card.

Librarian Bruce Merrill: No Report

Star Party Coordinator Bob Forgiel:

Bob is expecting three Boy Scouts Saturday, Nov 7th to work on their Merit Badges and a Cub Scout group on Nov 16th. On Friday Nov 20th we will conduct a Star Party at the Portsmouth Middle School, weather permitting. Dec 11th we will host



Smiley postcard donated at the November monthly meeting. Sent by Charles H. Smiley to Miss Bessie Alden after October 1, 1940 eclipse to Brazil.

a Christian Home Educator Group starting with a presentation at 6:30 and viewing at 7:30. We are in need of volunteers to help out with the above events.

Trustee Jim Brenek: Reports that the new shingle roof was installed. Jim also reminded all members with keys to attend the Observatory Committee meeting on Nov 14th to discuss reviving a commitment to support participation in Saturday, public nights. The goal is to develop an advance schedule with names and dates to ensure

that all scopes are fully staffed. This meeting is also open to any member interested in helping out with our public nights.

New Business: New members Bettina Briggs and John Leonelli were introduced and will be voted into Skyscrapers at the Dec meeting.

Old Business: The following new members were voted into Skyscrapers: **Tom Conlin, William Page** and **Lucille Laliberte**, hope to see them at future meetings.

Good of the Organization: Al Hall

provided some insight on this year's Leonid Showers to occur around 16-17 Nov. Al and Tom Thibault re-introduced the subject of expanding the meeting hall with an addition to the building. Tom, using CAD software, made up some slides with show how the building would look. Recommendations were made to hold a special meeting to discuss future expansion of the building to accommodate the increase in member attendance.

Business Meeting Adjourned at 9:30pm

Mirror Refiguring by Ed Turco

I can refigure mirrors 6" or under for \$30, but some explanations are in order:

I am not comfortable working on f4 or f/4.5 mirrors. I can do f/5 or above, and I like f/6 even better. All my working telescopes are f/6!

The \$30 includes return shipping.

If your mirror honestly doesn't need refiguring, you get your check back, minus the return shipping. This also applies if defects in your mirror are so beyond help, the same deal applies. In this latter category are mirrors which are grossly astigmatic due to improper annealing of the glass, and glass which is so pitted or scratched that grinding has to be done in order to get the glass surface to take a proper polish. Fortunately, most scratches in finished mirrors are scratches in the aluminum coating, not the glass.

I'm signing up for refiguring, not regrinding and repolishing too. Fair nuff?

If one of my refigured mirrors shows a lousy image, you are responsible for replacing your secondary with one of known quality. In other words, if I claim to figure your glass and take your money for refiguring, any problems remaining have to be elsewhere in your optical system.

You are responsible for getting your mirror recoated when I send it back to you.

I may need up to 2 to 3 weeks to complete any work you send my way. I am disabled by arthritis from time to time and this time could be a lot shorter, but I cannot make any promises.

I am on disability and the money will be greatly appreciated.

Thanks!

P.S. I have some dandy, better than starparty eyepieces for sale between \$15 and \$25. I can attach a listing if you desire one.

You are NOT required to buy anything extra from me in order to get your mirror refigured.

Eyepieces for Sale:

Items are like new as noted or slightly worn. No optics are compromised in any fashion. Purchasers are expected to try these out in a telescope before buying! I do not sell junk items. These are too good in looks and performance to be called "star party eyepieces".

\$15 each -- Kellner, MA or RKE knockoffs.

27mm Kellner • 25mm Kellner • 25mm Kellner • 25mm Celestron SMA (3) Wide Angle • 22mm Kellner • 20mm MA Wide Angle • 20mm "RK" (4) • 10mm Celestron SMA Wide Angle • 9mm Meade • 2x Barlow Lens (2)

\$20 each -- All are Plossls, except where noted; all Celestrons are NEW.

35mm Brass mount and eyecup • 32mm Celestron • 25mm • 22mm Kellner Brass mount • 22mm Kellner all Brass mount • 20mm • 15mm Celestron

(2) • 10mm Sirius • 9mm Celestron (2) • 8mm Brass mount • 6mm Celestron (2) • 4mm Celestron (2) • 2x Parks Barlow • 2x Celestron Barlow
\$10 each -- Star party eyepieces. Aluminum mounts. Even here, optics are not compromised!
30mm • 27mm • 20mm (5) • 16mm (3) • 9mm • 8mm

The following are in brushed brass barrels. These are quality items and worthy of a good telescope. Great to look at and look through!

40mm Ramsden -- \$20 each. A study by Steve Siok of Skyscrapers in the early 90's determined that at longer

focal lengths, eyepiece type isn't as important as with the shorter focal lengths. Perfect for RFT work at f/6 or above, 40 degree apparent field.

27mm Kellner -- \$20 each.

20mm Wide Angle or 16mm Wide Angle -- take your pick! \$25 each
6x30mm finder telescope, brushed brass finish \$35 each.

All are shown in the following picture:

Ed Turco
199 River Rd
Lincoln, RI 02865
ed_turco@yahoo.com



Observing at East Beach, Charlestown, RI

Jack Szelka

Geminids observing from East Beach, Charlestown, RI

The peak is actually on Sunday night, but most of us have to work on Monday unfortunately. The shower runs from December 6 to about the 18th. There should be a nice show on the night before peak also. Join us if you please. We will have a few scopes set up also for general viewing if the shower isn't that good. Bring your scope, binoculars lawn chair or just yourself. I will have my 12.5 inch Dob set up for viewing early in the night, until the show starts getting good.

Time: 7:30 PM Saturday night. December 12, 2009

Location: East Beach 2nd parking lot, Charlestown, RI

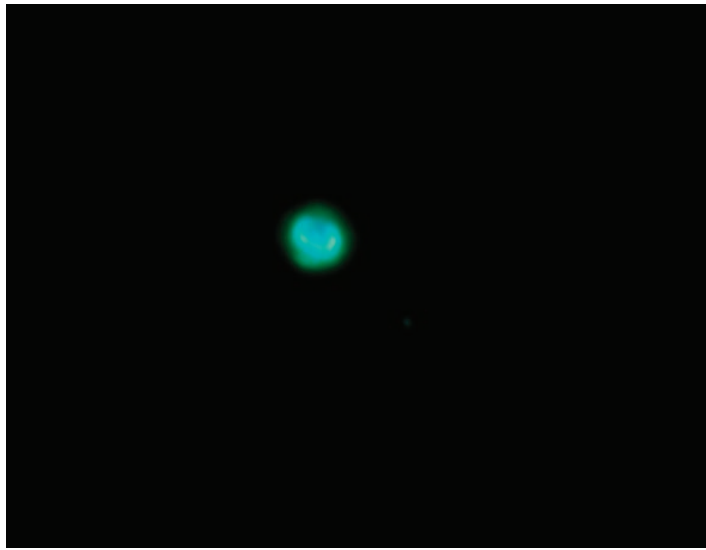
GPS: 41. 20.38.91 N 71.41.23.55 W

maps.google.com/maps?ll=41.34408,-71.689837&z=18&t=h&hl=en

Messier Marathon 2010

In the year 2010, March New Moon occurs on March 15.9, providing a primary opportunity weekend for Messier Marathon on March 13/14 and a secondary one on March 20/21, 2010. Because of the considerably early date, on the primary weekend it will be difficult to achieve the full 110-object score from mid-northern latitudes because of the difficulty or impossibility to see M30, while during the secondary weekend this may easier be possible from suitable latitudes and locations.

More info to follow as we get closer.



NGC 7662, the Blue Snowball Nebula taken on 11-20-09. It's a stack of 3 -1 minute exposures taken with a C11 SCT with a Meade DSI CCD. It was stacked and processed with MaximDL with additional processing in Adobe Photoshop 7.0. Thomas P. Thibault

DSLR Astrophotography: These photos were taken on November 8 from Seagrave Observatory using an unmodified Canon 40D attached to an 80mm refractor at f/6. All exposures were 30 seconds unguided at ISO 800 setting. Levels adjustments made using Photoshop CS. Photos by Jim Hendrickson.



M36



M38



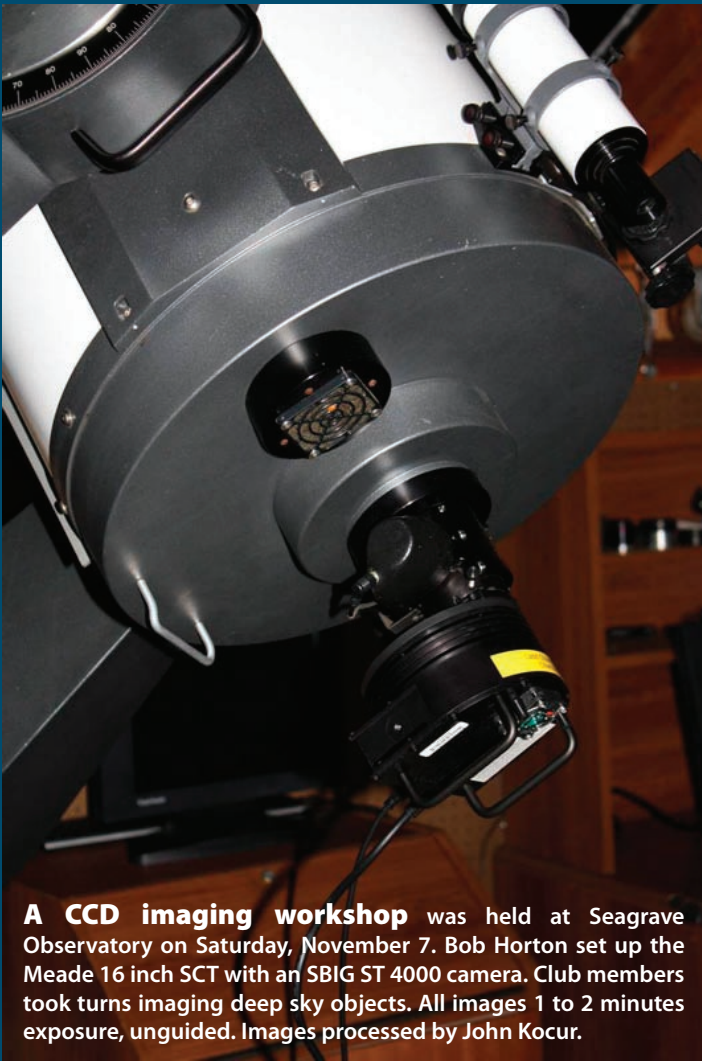
M39



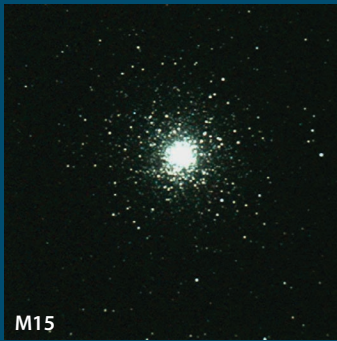
NGC 457



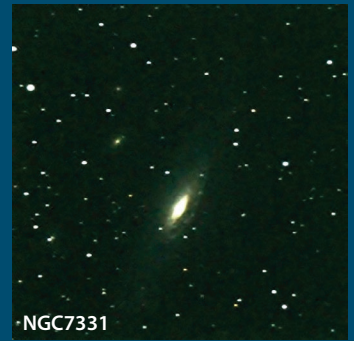
M31, M32 & M110



A CCD imaging workshop was held at Seagrave Observatory on Saturday, November 7. Bob Horton set up the Meade 16 inch SCT with an SBIG ST 4000 camera. Club members took turns imaging deep sky objects. All images 1 to 2 minutes exposure, unguided. Images processed by John Kocur.



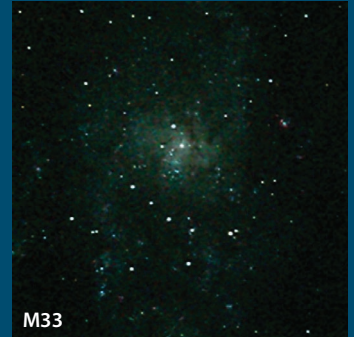
M15



NGC7331



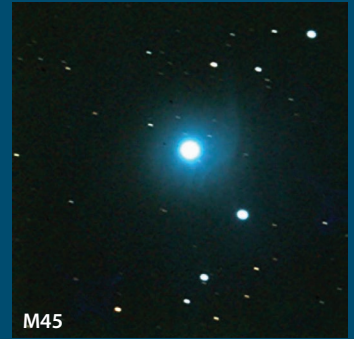
M31



M33



M76



M45



M42 & M43



M45

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, RI 02857

