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

Crescent Moon by Bob Horton

In this issue…

March Meeting with Dr. Timothy Barker

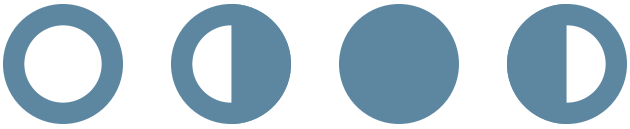
Friday, March 2, 7:30pm
North Scituate Community Center

Samples from the Moon

The Apollo lunar missions were a "giant leap for mankind" in many ways. The scientific dividends were huge, and we now realize that the Moon has had a unique role in the evolution of life on Earth. Wheaton College has on-loan from NASA actual lunar samples brought back by the astronauts, which we will view in a plexiglass disk and through a polarizing microscope.

Tim Barker received his Ph.D. in Astrophysics at the University of California at Santa Cruz in 1974 and has been at Wheaton ever since. He has taught a variety of courses, including "The Universe," "The Solar System," "Extraterrestrial Life," "Observational Astronomy," "Ancient Astronomies, and "Frontiers of Astronomy." He have published articles on planetary nebulae, supernova searches, and active galaxies and is currently doing asteroid research and searching for Transient Lunar Phenomena.

Phases of the Moon



Other notable events: Mars is at opposition on the 3rd. Mercury is at greatest eastern elongation on the 5th. The Moon is near mars on the 7th. The Moon is near Saturn and Spica on the 10th. Conjunction of Venus and Jupiter on the 13, with the 2 planets close to each other in the evening sky several days before and after. Mars passes through the Leo Trio (M95, M96 & M105) on the 15th - 18th. Equinox is on the 20th. Mercury is at inferior conjunction on the 21st. Uranus is in conjunction with the Sun on the 24th. The Moon is near Jupiter on the 25 and near Venus on the 26th. Venus is at greatest eastern elongation on the 27th. Watch Venus is it approaches the Pleiades at the end of the month.

Seagrave Memorial Observatory is open to the public

weather permitting
March 3 & 10: 7:00-9:00 pm
Beginning March 17: 8:00-10:00 pm

President's Message

Tom Thibault

Dear Skyscrapers Members,

Punxsutawney Phil emerged from his burrow and gazed upon his shadow, thus signaling we have 6 more weeks of winter. Well, if it continues being as mild as the season has been so far, I'm sure we will not mind. We have yet to close Seagrave for Public Viewing due to snow, and chances are we may not need to.

To my disappointment, I was unable to attend our February Meeting. Numerous individuals have told me that Gerry Dyck's presentation of "Astronomical Poetry" through the ages was excellent and entertaining. Gerry, I'm sorry I missed it, especially with all the rave reviews I've heard.

Professor Tim Barker is returning in March as our featured speaker. Professor Barker's last engaging presentation was a crowd pleaser and I suspect March's will be also. Professor Barker will discuss the Apollo Missions and display some of NASA's lunar samples. The lunar samples are on loan to Wheaton College and will be available for our viewing pleasure.

Skyscrapers elections are upon us and our Nomination Committee's selections will be announced during our March Meeting. Nomination Committee Chairman Dave Huestis will also being accepting nominations from the floor at that time. It's also time for begin the process of determining our society's operating budget. The work has begun and our 2012/13 Budget and will presented at our March Meeting as well.

Skyscrapers is a great organization that continues to evolve with time. As we continue to grow, so does the way our society operates. The foundation of our organization is our Constitution and Bylaws. Serving as your President under the direction of our society's documents has brought to light some areas of inconsistent content. The lack of the Family Membership category in our Constitution, while existing on our membership form is an example.

For this reason, I appointed a committee to review all our founding documents. It is my intention to present the committee's findings and recommendations during the business portion of the March Meeting.

This is a busy time of the year for Skyscrapers. As the world prepares for the arrival of Spring, we prepare for another year in our history. Our upcoming elections will fill five vacancies on our Executive Committee and one on our Board of Trustees. Our 2012/13 operating budget will be presented for consideration. Future approval will allow our organization to continue our mission. I encourage all our members to participate in the process, so come join us at our upcoming meetings. Our Observing Committee will continue to share the night sky with the public and welcome all interested in participating.

Feel free to approach any member of our Executive Committee, Trustees, Observatory Committee, and Outreach Coordinators if you have an interest in becoming more involved in the organizations activities. I look forward to seeing all of you at our March Meeting.

Clear Skies

Jupiter image by Steve Hubbard. February 19, seeing was fair, 15 sec avi, processed thru registax.

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.

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 **March 23** 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.

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Marvelous Mars

Dave Huestis

What immediately pops into your head when I mention Mars? If you had asked me back in the sixth grade (1964-65), I would have answered H.G. Wells' *War of the Worlds*, for it was then that I first read that great science fiction novel about Martians invading our world. From then until the early 70's I was aware the United States had sent several unmanned spacecraft (Mariner series) to explore our desert neighbor. Then came the Viking landers in 1976. And now I think about the surviving Mars rover Opportunity who, like the Energizer Bunny, keeps "going and going." I'm also looking forward to the landing of a small car-sized rover in August called Curiosity.

When I'm able to show a young child a great view of Mars through Seagrave Observatory's 8-inch Alvan Clark refractor telescope or Ladd Observatory's 12-inch Brashear refractor, I often wonder if that young person may be the first earthly explorer to set foot upon its rusty soil. He or she may get to visit the crash or landing sites of our earlier unmanned explorations and get to see firsthand the magnificent "geological" structures explored by the rovers. This adventurer will be able to step up to a rock outcropping and pick away at the formation hoping to discover evidence of past life. (Much like I imagined doing as I watched the fantastic images transmitted to Earth from the Mars rovers.)

For this article I am not going to recount the history of Mars observations or spacecraft explorations other than to say the initial accounts of possible "canals" on Mars at the end of the 19th century captured our imagination and most assuredly hastened our spacecraft exploration of this desolate world. If you would like some historical background, visit Skyscrapers web site at http://www.theskyscrapers.org/ and look for an article titled "Mars History Highlights 2012."

It's been over two years since I've written about our planetary neighbor Mars. Why? As it is with most things astronomical, events in our solar system occur in a cyclic manner. Earth and Mars have a close encounter every 26 months. During the last few months the Earth has been catching up to Mars in our respective orbits, since the Earth orbits the Sun (one year) in less time than Mars does (1.88 years). On March 5 these two planets will be at their closest distance from each other: 62,652,214 miles. Unfortunately not all Mars close encounters are favorable ones. That fact is due to the eccentricity of Mars' elliptical orbit and its distance from the Sun. And just to put that distance into some perspective, back on August 27, 2003, Earth and Mars were a mere 34,646,418 miles apart.

For some Mars observers it might be a challenge to observe much detail considering how small the disk of the planet will appear even at its closest approach. However, don't let Mars' small image size deter you from gazing at this planet that has stimulated our collective imagination for over a century.

This brief Mars observing guide will help you to discern and appreciate the planetary detail a telescope may show you of this neighboring world. While this 2012 apparition is not one of the closer ones, medium-sized backyard telescopes should still coax some detail out of the small image. And of course the local observatories will be able to share even more Martian detail when steady seeing allows them to "crank up" the magnification.

Image of Mars taken on February 24 by Dave Huestis using one of Project Slooh's robotic telescopes in the Canary Islands. Raw image, unprocessed.

If you haven't begun to observe Mars on your own prior to reading this column, the next clear night would be a good time to drag your telescopes out and have them collect the light of all the heavenly bodies, instead of collecting dust in storage. After we and Mars are closest on March 5, the Earth effectively laps our neighbor due to our greater orbital speed. After just one week we will be just over half a million miles apart. A week later it will be an additional 1.5 million miles. So don't procrastinate. You'll observe more detail if you start your Mars observing program right away.

First you will need to locate Mars in the sky. Just after sunset on March 1, Mars will be the red object about ten degrees (a fist held at arm's length gives this measurement) above the eastern horizon. You should wait for it to climb higher into the sky and out of any horizon haze and turbulence. By 9:00 pm Mars will be almost 40 degrees above the horizon and awaiting your scrutiny. It would be hard not to notice Mars, for its pumpkin orange color is very distinct.

By that time the sky will also be completely dark, and you'll be able to see it in relation to the background stars. During this Mars observing season it will remain within the constellation of Leo, the lion. It currently resides below the hind quarters of this sky picture. Mars will move westward in the sky towards the bright star Regulus, which anchors the backwards question mark pattern called the Sickle and represents the lion's heart. Mars won't reach Regulus, because in mid-April the planet will move eastward in the sky.

Once you focus in on Mars with a telescope, the first detail you will notice will be the color. It's not quite red, but not quite orange. Perhaps Crayola has a hue that best describes what we can see. How would you describe it? The second detail that will catch your eye will be the North Polar Cap (NPC). It's definitely a bright white feature that can be seen because Mars' north pole is currently tilted towards the Earth. It is late spring in Mars' northern hemisphere, so the NPC has had some time to melt. Mars' Summer Solstice occurs on March 30, so as more time passes, an observer should be able to notice the NPC shrinking and breaking up. Mars' image will be fairly small, so one should wait for steady seeing conditions to observe as much detail as possible. The NPC will continue to shrink as the Martian summer progresses, while the Earth/Mars distance will be increasing and the image size will be decreasing.

While the NPC should be rather apparent, the rest of the planet will appear as a rust-colored beach ball. As you more carefully scan this alien world, you should

begin to notice several dark features on the Martian surface. These features are the underlying rock exposed by the shifting sands during intense dust storms. The relatively small image will make it somewhat of a challenge to identify much detail, and the dark surface features may be fleeting. Despite this handicap, a keen-eyed observer should be able to catch a few glimpses of a dark area like Syrtis Major or a bright one like Hellas Basin. You may be able to identify some of Mars' dark and bright surface features by utilizing a utility called Mars Profiler provided online by *Sky and Telescope* magazine (http://www.skyandtelescope.com/observing/objects/javascript/mars),

Also please keep in mind that Mars rotates once in 24 hours and 38 minutes. That means if you observe a feature at a specific location at a specific time on a given night, you'll have to wait an additional 38 minutes each successive night for it to be at the same spot, since the Earth rotates once every 24 hours.

Though Mars is noted for producing dust storms that can globally enshroud the planet, therefore preventing any of its surface features from being observed, it is unlikely that will happen during this opposition. Those storms are active when Mars is at perihelion (closest to the Sun), and that won't happen until January 2013. During Mars' current orbit about the Sun, its aphelion (farthest distance from the Sun) was on February 15. Major dust storms are unlikely, so take your time observing and note as much detail as your telescope and local weather conditions allow.

In conclusion, be patient when observing Mars. The planet's disk will be small. Wait for steady seeing conditions. Don't try observing Mars if the stars are twinkling. Take a knowledgeable glimpse of an alien world that inspired generations of astronomers and science fiction writers alike to ponder the existence of Martian life-forms.

Drag out those telescopes and expose them to the light of the universe. One day your children or your grandchildren may set foot upon this exciting landscape.

If you don't own your own telescope (or the view through the one you do own is too small to see much detail) plan on visiting Seagrave Observatory (http:/www.theskyscrapers.org/) on Peeptoad Road in North Scituate on any clear Saturday night. Or visit Ladd Observatory (http://www.brown.edu/Departments/Physics/Ladd/) located on Hope Street on Providence's East Side on any clear Tuesday night. Also consider visiting Frosty Drew Observatory (http://www.frostydrew.org/) in Charlestown. Frosty Drew observing begins at 6:00 p.m. with no set end time.

Dress warmly and take advantage of the views these larger telescopes can provide. Please check the above websites for any cancellation notices before venturing out for a visit, since snow and ice at the facilities can force closures even when the skies are clear.

Don't forget, we switch to Daylight Saving Time on Sunday, March 11, at 2:00 am, so during mid-March be sure to double check the above web sites for opening time changes.

Keep your eyes to the skies.

Mars History Highlights

Dave Huestis

"No one would have believed in the last years of the nineteenth century that this world was being watched keenly and closely by intelligences greater than man's and yet as mortal as his own; that as men busied themselves about their various concerns they were scrutinized and studied, perhaps almost as narrowly as a man with a microscope might scrutinize the transient creatures that swarm and multiply in a drop of water. With infinite complacency men went to and fro over this globe about their little affairs, serene in their assurance of their empire over matter.... No one gave a thought to the other worlds of space as sources of human danger, or thought of them only to dismiss the idea of life upon them as impossible or improbable. It is curious to recall some of the mental habits of those departed days. At most, terrestrial men fancied there might be other men upon Mars, perhaps inferior to themselves and ready to welcome a missionary enterprise. Yet across the gulf of space, minds that are to our minds as ours are to those of the beasts that perish, intellects vast and cool and unsympathetic, regarded this earth with envious eyes, and slowly and surely drew their plans against us. And early in the twentieth century came the great disillusionment."

So begins The War of the Worlds, the 1898 classic by H.G. Wells. This book was the first science fiction novel I ever read. I remember reading it nonstop from cover to cover because I was so fascinated with the possibility of life on other worlds. Too bad most literary and movie extraterrestrial life-forms almost always seem determined to exterminate us!

Did Mr. Wells dream up the idea of intelligent beings residing on Mars? I'm afraid the credit is not due him. Wells relied upon astronomical studies of his day for the premise. It all began in 1877 when Italian astronomer Schiaparelli reported observing "canali" on Mars. Canali means channels. However, when the word was translated into English they were simply called canals. Canals implied intelligent construction, and thus began the speculation on the Martian builders.

At the turn of the 20th century, United States astronomer Percival Lowell began a study of Mars. With the guidance of the Harvard College Observatory, an observatory was erected on a hill in Flagstaff, Arizona, where the seeing was quite good. It is still a working observatory today, named Lowell Observatory in his honor.

Lowell also observed these peculiar markings that supposedly criss-crossed the planet. He conjectured that the Martians had an impressive irrigation system to carry water from the frozen polar caps to the arid desert regions near the planet's equator. Lowell wrote, "Irrigation, and upon as vast a scale as possible, must be the all-engrossing Martian pursuit.' But alas, there are no canals on Mars, or any Martians either, as far as we know. So what really did Schiaparelli and Lowell see?

No one knows! Some astronomers have speculated that under ideal observing conditions these two astronomers may have detected craters on the Martian surface. It could have also been subtle difference between bright and dark areas. Their brains may have played connect-the-dots with these features to produce the "canals." Only with today's modern telescopes and electronic equipment are craters and volcanoes

visible. So it appears the old observations may always remain a mystery.

(I visited Lowell Observatory in 1981 and had the opportunity to observe Saturn through the magnificent 24-inch refractor. It was an awe-inspiring image I will never forget. My only regret is that Mars was not the object of our attention that evening. I can only imagine what views this great refractor provided to Lowell in the clear and stable air of Flagstaff. Would I have succumbed to the Lowellian Syndrome as well?)

Since Lowell's time, many spacecraft have orbited the red planet. Currently there are three spacecraft orbiting Mars and taking detailed images: the Mars Reconnaissance Orbiter, Mars Express, and Odyssey. And of course we can't forget the ground exploration of rovers Spirit and Opportunity. Spirit has ceased functioning, but Opportunity is continuing its mission, eight years after it landed.

Soon this little rover will be joined by a much bigger brother. In August of this year, Curiosity, a small car-sized rover, will land on the Martian surface to begin a new era in planetary exploration. And like the previous rover missions, we'll be able to share in the excitement as images are transmitted back to the Earth and posted to the web for all to see.

Unfortunately none has yet to confirm Lowell's observations. Mars is a bleak, desert-like planet that is also very heavily cratered. There are huge volcanoes, global dust storms, and great sand dune fields. In addition, what look like dry river beds abound on the planet. Could Schiaparelli and Lowell have seen these? Not from Earth they couldn't! Even the craters don't match up to any of the drawings Lowell made of round regions he called oases, where "canals" appeared to merge.

Besides, Mars has been dry for a long, long time. It seems the planet once had an abundant supply of flowing water on its surface. Somehow much of it was lost to space, whereas the remainder may still be trapped beneath the surface as permafrost. The polar caps also contain much water ice, though it is mixed with a lot of carbon dioxide. There is no liquid water on the Martian surface due to the low atmospheric pressure. However, more recent observations from the Mars Reconnaissance Orbiter have detected possible salty water (brine) flows emerging from steeply sloping walls during the warmest periods of the Martian 687 day year.

Prior to 1976 faint hope still persisted that Mars supported some form of life. I'm sure that belief drove the research teams who oversaw the two Viking landers that successfully touched down on the Martian surface in July 1976. Among other experiments, the Viking landers tested the soil surrounding the space craft for microscopic life. The results proved negative, though some biologists and chemists say "inconclusive." A television camera on board scanned the immediate area. No Martian, large or small, sauntered past the lander. I think many researchers would have indeed been shocked if the camera had revealed a curious creature peering into the lens. Our outlook on life in the universe, as well as our place in it, would have dramatically changed.

What continues to draw us to Mars? Is it because we still believe life may once have flourished upon or beneath its now lifeless terrain? Spacecraft images and sensors may provide a wealth of data, but nothing can compare to the experience of seeing first-hand even a fleeting image of some Martian surface features through the telescopes at the local observatories or even through one's personal backyard telescope.

Help Protect the Dark Skies of Charlestown and Frosty Drew Observatory

Francine Jackson

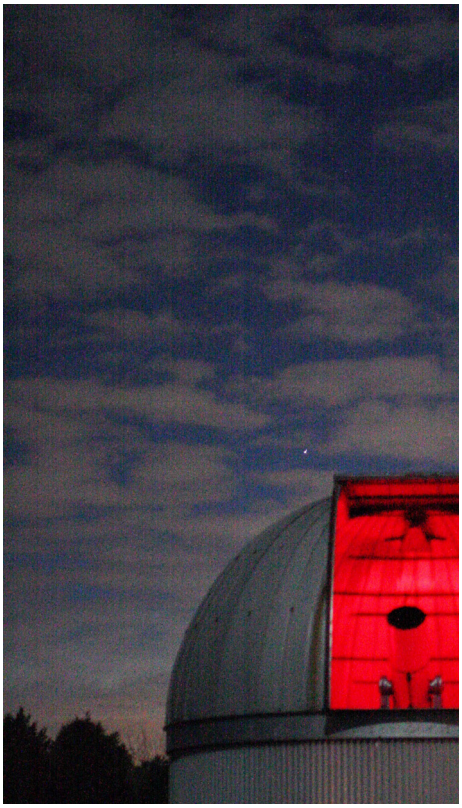
For all of you who have ever spent a night at Frosty Drew Observatory, you might have noticed that its skies are quite good; in fact, we do advertise ourselves as having the darkest skies in our state. However, to keep this designation, observatory staff, as well as the entire board of Frosty Drew, have spent years fighting to protect our skies, so far rather successfully. But, now there seems to be even more push to make Ninigret Park, the observatory's home, into more of a day/night destination by increasing the lighting in the Park. The present push involves the Park Department's proposed construction of a football field just a few hundred feet to our west. The proposal includes lighting, up to 75 feet above the field, for night use. As the observatory is nowhere near that height above the ground, this would create a horrible addition to lighting that is already threatening our skies.

Some of you might also be surprised that Charlestown, where we are, does not have a lighting ordinance. There is one proposed, to be voted Monday, March 12th, but all signs seem to point to its being opposed by the town council, who are hearing from members of the public who believe it would be detrimental to their lifestyle. What is not generally known is that the ordinance as written has no effect on town residences.

If any of you have been down to the Frosty Drew Observatory, or have spent time observing elsewhere in the Park, please think of sending a note advocating the lighting ordinance for the town. You can read the proposal on the Town's website, and, if you have time, find the email addresses of the council members. All of us at Frosty Drew welcome any help you can give us.

Thanks,

Francine Jackson

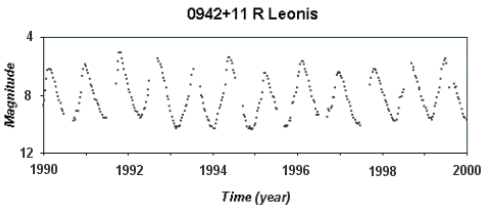


R Leonis

Glenn Chaple's Sky Object of the Month

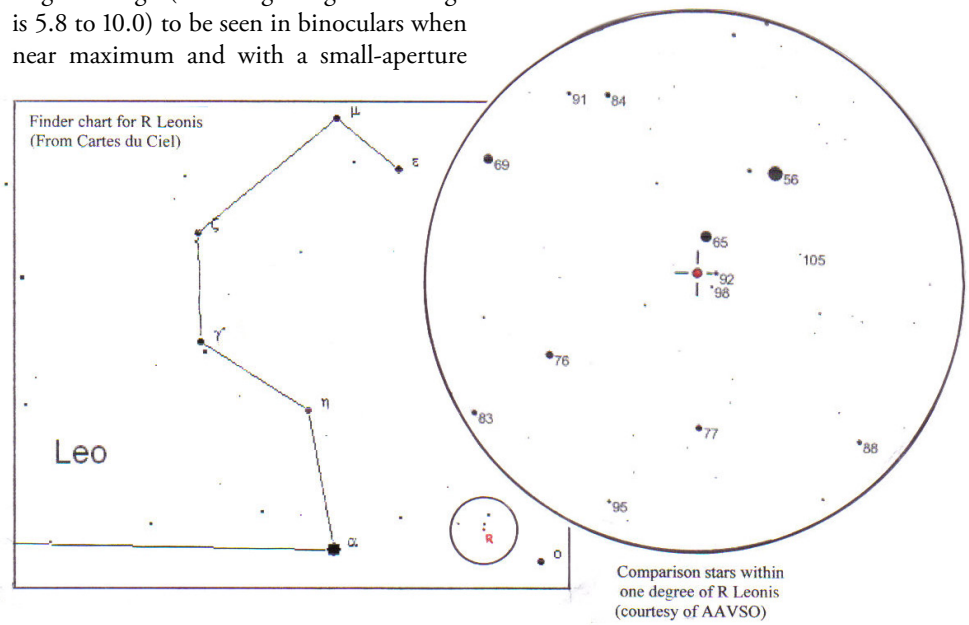
On the evening of March 1, 1918, a young Ohio farm boy trained a small refracting telescope towards the variable star R Leonis. He estimated its brightness, later forwarding the information to the American Association of Variable Star Observers. It was the first of over 132.000 variable star observations the legendary Leslie Peltier would submit to the AAVSO.

Since Peltier's time, R Leo has introduced dozens of amateur astronomers to the rewarding pastime of variable star observing. R Leo is tailor-made for the novice for two reasons – it's easy to find and easy to observe. You'll find R Leo by directing your telescope slightly north of a spot one-third of the way from omicron (o) Leonis to Regulus (the circled area on the accompanying map of Leo). An expanded view of that circle shows R Leonis and the magnitudes of nearby comparison stars, decimals omitted. R Leonis is bright enough (its average magnitude range is 5.8 to 10.0) to be seen in binoculars when near maximum and with a small-aperture telescope throughout its 312-day cycle.



The magnitude range and period attributed to R Leonis are typical of a class of variable stars known as Mira-type, or Long-Period Variables (LPVs). Like its kindred LPVs, R Leonis is a cool red giant – a dying star whose brightness changes result from internal pulsations.

Based on recent observations, R Leonis has a magnitude in the mid-8 area and is rising to a predicted maximum later this month. The time is ripe for you to jump in and become acquainted with the variable star that launched Leslie Peltier's stellar career.



The Full Moon in March

Francine Jackson

As we're preparing for the new season, which, this year we've so far hardly noticed wintertime, we also are reminded by our full moon that this is a sacred time for many. The Full Moon of March is called the Lenten Moon, a tribute to the 40 days of sacrifice begun this year in mid February. Because this month's Full Moon is earlier than the first day of spring, our vernal equinox, we have to wait for the end of Lent, the celebration of Easter, to happen next month.

To prepare for the new season, March's full Moon has many reminders of the awakening of the Earth. The ground is slowly softening, allowing the earthworms to begin their upward movement. This Worm Moon is a reminder to watch for worm eaters, including the return of the robin, for whom earthworms are among their favorite breakfast. As for other birds, the northern American Indians at this time started to hear a regular cacophony of cawing crows, their signal that winter had officially passed; therefore, they paid tribute to them by designating the Full Crow Moon.

And, of course, for us New Englanders, what is a major sign of our part of the U.S., maple syrup, is begun to be collected at this time of year. Most of the maple trees are now clad with a bucket collecting as much of the pre-syrup as the trees are willing to give us, resulting in our looking up at the Full Sap Moon.

In today's culture, we might think of adding a new name to the March 8th Full Moon. It is arriving just a couple days before the new, earlier time in the year to change our clocks. Three days later, the morning of Sunday, March 11th, don't forget to "spring ahead" all your time pieces. Perhaps we could begin calling the Full Moon before this weekend as the "Time Change" Moon.

Tom Thibault's Heaven's View Observatory

Show Us Your Backyard Observatory

We are planning to publish a series of features on backyard observatories. Do you have a backyard observatory that you would like to feature in an upcoming issue of *The Skyscraper*? Please send your stories and photos to Jim@distantgalaxy.com.

Please send any observing reports and photos to Jim@distantgalaxy.com.

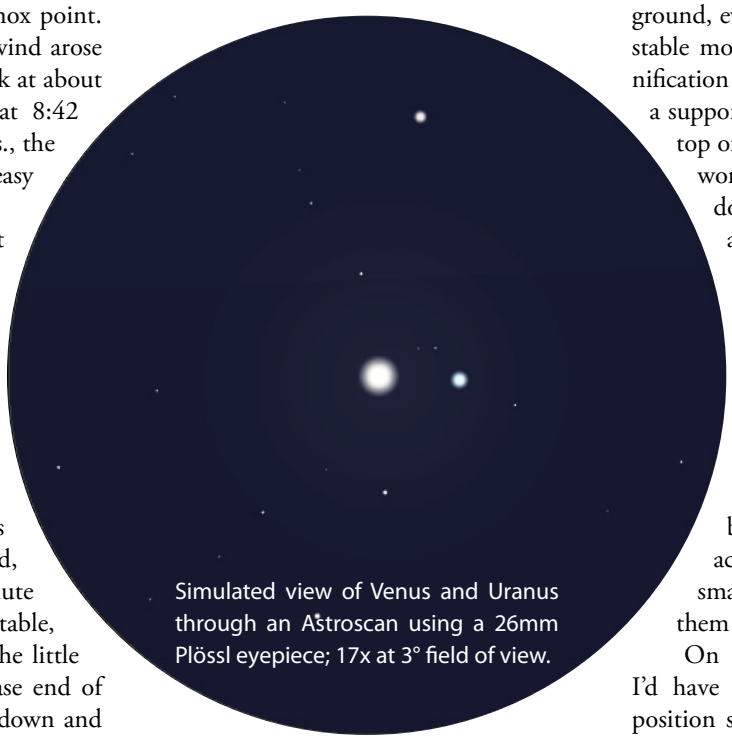
A Planet Pair Viewed in a Scope Atop a Trash Container

Craig Cortis

Yes, you read it correctly. I thought my long title would make for an engaging introduction to an anecdote about the recent close conjunction of Venus and Uranus. Back on the evening of Thursday, February 9, these two worlds were drawing ever closer in apparent separation to a projected gap of just 18 arc-minutes – less than one-third of an angular degree – at 8:00 p.m. Actually, it's more accurate to say that Venus was "approaching" the position of Uranus on the sky as the brilliant, much nearer planet moved swiftly eastward along the ecliptic. As of 7:00 p.m. on that evening, the planets were a little over 2 degrees of angle to the east-northeast of the Vernal Equinox point. The sky was nicely clear and no wind arose when I went outside to have a look at about 6:15. Although they would set at 8:42 from my location in Oxford, Mass., the planets were sufficiently high for easy viewing.

Some of you might recall past articles I've written having references to my strong inclinations to casual, low-tech observing, particularly with respect to compact, easily managed "grab-n'-go" scopes that can be set up and made ready to use in 5 minutes or so. The Edmund Scientifics Astroscan telescope has long been my favorite in this regard, because it often takes just a minute to set up. All you need is a fairly stable, small surface on which to place the little base that accepts the spherical base end of the scope – just plunk the thing down and set the Astroscan down on it, and you're ready to view. Nothing could be simpler, provided you don't mind being limited to the low magnifications yielded in an instrument having a focal length of just 445 millimeters (17.5 inches) and aperture of 105 millimeters (4.125 inches), which might seem puny in this day and age of so many larger telescopes in common use. Also, the Astroscan's "fast" focal ratio of 4.24 makes for obvious coma on star images seen near the edge of the field and necessitates a level of collimation that's very tough to achieve if your particular scope has gotten "out of whack" for some reason. (Even *if* the collimation is nearly perfect you'll still have to accept some coma, after all.) I'm not bothered by these various features, though.

Perhaps 12 or more years back, I bought an Astroscan from Bob Horton at a Skyscrapers function. Ladd Observatory has a few in its equipment inventory; I usually use one during Tuesday public nights out on the deck to show wide-field views of things that simply *can't* be seen well in more restricted fields of view. The Pleiades are a perfect example of just how pleasing a view can be obtained on large angular size objects like this; nothing else compares, except a binocular. One thing an Astroscan is notorious for is the fact that nobody other than factory techs or those experienced in collimating their optics can actually do so, because, basically, there *is* no adjustment provision inherent in this scope that permits external adjusting of the primary *or* diagonal mirrors! It's a completely enclosed optical system with a window set in the front end. Partial disassembly must be done to clean or tweak the optics, and the narrow tube diameter makes it difficult to manage this – the scope has a solid, unibody form.



Simulated view of Venus and Uranus through an Astroscan using a 26mm Plössl eyepiece; 17x at 3° field of view.

My own Astroscan had been badly in need of both cleaning *and* recollimating for years, so I turned it over to my friend Tim Dube of East Douglas, Mass. a few months back so he could work his usual magic. Tim can collimate almost anything, and has done so many times over the years. The result was a scope in better condition than at any time since I've owned it, and I was eager to use it for such a special occasion. By now you're wondering about the trash container, I expect. If you're using a scope that doesn't have a Dobsonian base or tripod arrangement for mounting, you obviously need some sort of stable, solid, horizontal surface on which to set its base. A small table, level car hood, etc. works fine, but what if you can't easily manage such a setup in a given location on your observing site? Many years ago I came up with the notion of using our wheeled plastic trash bin as a portable platform of just the right height for supporting my Astroscan. These trash containers are fairly heavy and sufficiently stable once placed upon pavement or hard ground, even on grass. The Astroscan's ultra-stable mounting design and very low magnification possibilities easily adapt it to such a support. I put the base down directly on top of the hinged cover of my bin and it works fine, *or* you could pivot the top down and just lay a couple of boards across the top edges to make a temporary table top to support a small scope base. You can wheel the bin to any desired location and have a support for a small scope that places it at an ideal height by which you can avoid stooping or crouching. Not stable enough for your liking? Just add weight at the bottom of the bin. If boards laying across the top are not steady, just use small wedges where needed to stabilize them evenly atop the rim.

On the night mentioned, I saw that I'd have to place my scope in a certain position so as to take advantage of an unobstructed sightline through a gap between trees. Wheeling the trash bin 50 feet from its usual spot put me in a good location for viewing Venus and Uranus together. A 26 millimeter Plössl eyepiece gave me a magnification of only 17x in the Astroscan, which is about perfect for much of the observing I do. As usual, no problems with vibration or unsteadiness were experienced. (Very low powers can be quite forgiving when you don't have a rock-solid mounting, after all.) I knew how Uranus would appear with respect to a number of field stars, having studied its position on a chart in Uranometria, my favorite star atlas for detailed star-hopping.

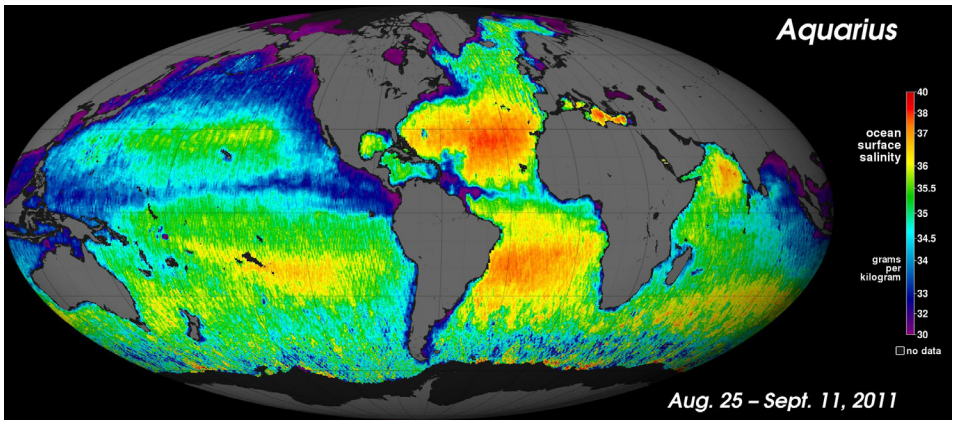
Uranus, at only 3.4" in apparent diameter, and seen at such low power, looked like a background star with *no* appreciable color to distinguish it, due in part to the washing-out effect that the glare from Venus imparted to the surrounding area in the image. At magnitude 5.9, Uranus happened to be brighter than any of the field stars I used to locate it, which was fortunate. After a couple of minutes, I was satisfied beyond question that I'd positively identified the planet and could then concentrate on appreciating how close it looked to Venus, which shone at magnitude -4.1 and therefore was 10 magnitudes brighter, or a ratio of 10,000 *times* brighter!

In apparent diameter, Venus was about 16" and 4.7 times bigger than the perceived size of Uranus. This was strange to consider, because Uranus is approximately 4.22 times the actual size of Venus, but was nearly 19.88 times further from Earth than was Venus on February 9. I wanted to make sure that I didn't just see these two vastly different worlds – so far apart from each other in actual distance – as an attractive close pairing of note, something to quickly see as a "snapshot" just so I could say I'd seen them together. When you view things only in two dimensions and can have no visual impression of their *true*, greatly disparate distances and physical sizes, it's all too easy to rack up an observation so you can say you've done it without making the mental effort to truly appreciate the significance of such a pairing. Our dazzling neighbor planet was just over one astronomical unit of distance from Earth, but the reflected sunlight coming from Uranus took 2.88 hours to reach my eyes. Did I succeed in my efforts along these lines? Maybe not quite fully, I must admit. Still, I'm glad I gave it a try.

NASA's Space Place

The Hidden Power of Sea Salt, Revealed

By Dr. Dauna Coulter



Aquarius produced this map of global ocean salinity. It is a composite of the first two and a half weeks of data. Yellow and red represent areas of higher salinity, with blues and purples indicating areas of lower salinity.

Last year, when NASA launched the Aquarius/SAC-D satellite carrying the first sensor for measuring sea salt from space, scientists expected the measurements to have unparalleled sensitivity. Yet the fine details it's revealing about ocean saltiness are surprising even the Aquarius team.

"We have just four months of data, but we're already seeing very rich detail in surface salinity patterns," says principal investigator Gary Lagerloef of Earth & Space Research in Seattle. "We're finding that Aquarius can monitor even small scale changes such as specific river outflow and its influence on the ocean."

Using one of the most sensitive microwave radiometers ever built, Aquarius can sense as little as 0.2 parts salt to 1,000 parts water. That's about like a dash of salt in a gallon jug of water.

"You wouldn't even taste it," says Lagerloef. "Yet Aquarius can detect that amount from 408 miles above the Earth. And it's working even better than expected."

Salinity is critical because it changes the density of surface seawater, and density controls the ocean currents that move heat around our planet. A good example is the Gulf Stream, which carries heat to higher latitudes and moderates the climate.

"When variations in density divert ocean currents, weather patterns like temperature and rainfall are affected. In turn, precipitation and evaporation, and fresh water from river outflow and melt ice determine salinity. It's an intricately connected cycle."

The atmosphere is the ocean's partner. The freshwater exchange between the atmosphere and the ocean dominates the global water cycle. Seventy-eight percent of global rainfall occurs over the ocean, and 85 percent of global evaporation is from the ocean. An accurate picture of the ocean's salinity will help scientists better understand the profound ocean/atmosphere coupling that determines climate variability.

"Ocean salinity has been changing," says Lagerloef. "Decades of data from ships and buoys tell us so. Some ocean regions are seeing an increase in salinity, which means more fresh water is being lost through evaporation. Other areas are getting more rainfall and therefore lower salinity. We don't know why. We just know something fundamental is going on in the water cycle."

With Aquarius's comprehensive look at global salinity, scientists will have more clues to put it all together. Aquarius has collected as many sea surface salinity measurements in the first few months as the entire 125-year historical record from ships and buoys.

"By this time next year, we'll have met two of our goals: a new global map of annual average salinity and a better understanding of the seasonal cycles that determine climate."

Stay tuned for the salty results. Read more about the Aquarius mission at aquarius.nasa.gov.

Other NASA oceanography missions are Jason-1 (studying ocean surface topography), Jason-2 (follow-on to Jason-1), Jason-3 (follow-on to Jason-2, planned for launch in 2014), and Seawinds on the QuikSCAT satellite (measures wind speeds over the entire ocean). The GRACE mission (Gravity Recovery and Climate Experiment), among its other gravitational field studies, monitors fresh water supplies underground. All these missions, including Aquarius, are sponsors of a fun and educational ocean game for kids called "Go with the Flow" at spaceplace.nasa.gov/ocean-currents.

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

February Report

Ed Haskell, Secretary

Skyscrapers, Inc
Meeting of February 3, 2012
Minutes

The meeting was called to order by Second Vice President Kathy Siok at 7:30 pm.

Skyscraper member **Gerry Dyck**, delivered a quite exceptional two-part presentation on poetry and astronomy. In the first part, entitled The Poet and the Sky, he performed interpretive readings of numerous examples of poetry with astronomical themes – from ancient Egypt, medieval Persia, the King James Bible, to major English-speaking poets such as Shakespeare, Milton, Tennyson, Whitman and Frost, Also quoted were lesser-known poets such as Alfred Noyes, a part of whose epic poem Watchers of the Sky was recited at the First Light Ceremony of the 100-inch Hooker telescope on Mt. Wilson.

The presentation concluded with a cycle of original poetry and music, composed and performed by Gerry, called The Ancient Face of Night, a new arrangement of music, words and images originally composed for the visit of Clyde Tombaugh and the 75th anniversary of the AAVSO.

While the membership has grown accustomed to fine presentations by Gerry, it is safe to say that all expectations for this program were exceeded many times over.

There were no amendments to the Secretary's Report and Treasurer's Report.

The First Vice-President reports that Dr. Timothy Barker, of Wheaton College, will be the featured speaker for the March meeting.

The Second Vice-President announced that AstroAssembly will be held on October 12 and 13, 2012.

The Observing Chairman reviewed dates for upcoming star parties.

The Trustees reported that few observing sessions have been canceled due to weather and it is hoped this trend will continue through the remainder of Winter. Their policy now is that temperatures below twenty degrees will cause the observatory to be closed.

Comments for the Good of the Organization were:

It was noted that the blinds on the anteroom windows were left open. Members must be ever vigilant to closing up the facilities to ensure security of the premises.

Meeting adjourned at 9:25pm

Respectfully submitted,

Ed Haskell, Secretary

Galaxy M64 image by Steve Hubbard. 3 minutes using Mallincam on 12" Meade SCT.

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