



the Skyscraper

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May 2011

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



May Meeting with Roy Kilgard

Friday, May 6, 7:30pm
Seagrave Memorial Observatory

**The Past,
Present, and Future of
the Van Vleck Observatory**

The Van Vleck Observatory sits atop Wesleyan University's Campus in Middletown, CT, painting a scenic backdrop for all who visit the University. For 175 years, Wesleyan has been the site of active astronomical research, and the Van Vleck Observatory is currently the home to two telescopes of note: a 20" Alvan Clark refractor and a 24" Boller and Chivens Cassegrain telescope. I will provide a brief overview of the Observatory, its historical instruments, its scientific work, and the people who have called VVO home. I will then turn to the present, discussing observations currently taking place with modern instruments on campus and at facilities around (and above!) the world.

Roy Kilgard grew up in rural south Georgia near one of the best dark sky locations in the eastern United States, and became a dedicated observer from an early age, using a 4" Newtonian reflector with no clock drive. He attended Valdosta State University, triple-majoring in Astronomy, Physics, and Philosophy. While there, he and 3 college friends attempted the Messier Marathon twice, finding (and sketching) 83 objects the second time.

From 1997 to 2001, he worked at the Harvard-Smithsonian Center for Astrophysics as a research assistant for the Chandra X-ray Observatory; primarily writing and documenting analysis software and providing support for observers.

From 2001 to 2005, Roy attended graduate school in a joint program between the University of Leicester (in the English midlands) and the Center for Astrophysics, hopping back-and-forth across the Atlantic every few months. In 2005, he completed his Ph.D. in astrophysics, entitled "The X-ray Point Source Populations of Spiral and Star Forming Galaxies", and returned to the Center for Astrophysics full-time as a research astronomer and post-doctoral scholar.

In 2007, Roy moved to Connecticut and the Van Vleck Observatory at Wesleyan University, where he is now a Research Assistant Professor of Astronomy. His research emphasis is in X-ray emission from galaxies, with recent work centered on stellar- and intermediate-mass black holes and their link to episodic star formation events in galaxies. His most recent achievement is the birth of his first child, Tabetha Patrice Kilgard, born March 7th, 2011.

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Phases of the Moon



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Other notable events: Multiple planetary conjunctions in the morning sky all month. See page 12 for more.

Seagrave Memorial Observatory
is open to the public

weather permitting

**Summer hours begin May 7
Saturdays: 9:00-11:00 pm**

President's Message

Tom Thibault

Dear Skyscrapers Members,

Spring has sprung at Seagrave and as Dave Huestis noted, the glaciers have receded. We were able to open the observatory for Public Viewing for the first time this year on March 19th. We had an enthusiastic crowd all wanting to take in a close-up view of the "Super Moon". It was a great evening; the weather was what we all have been waiting for — relatively warm and clear skies.

The evening began with naked eye views of Jupiter and Mercury's twilight conjunction above the western horizon. Our visitors were then treated with a tour of the observatory and recently restored 8-1/4" Alvan Clark. Dave enlightened our visitors to the historical facts of Frank E. Seagrave, the Clark and observatory, as well as Skyscrapers. The scopes went into operation including Bob Horton's home-made reflector, and the society's 12" Meade. The early part of the evening was focused on the Orion Nebula, a scattering of deep sky objects, and of course the "Super Moon". The end of the evening treated those that remained to a splendid view of Saturn which had risen high enough in the east to clear the tree line. I urge all interested in sharing their knowledge of the night sky to volunteer to assist on Open Public Nights and to contact our Trustee's regarding training on our equipment. These activities will provide you with great satisfaction and contribute to our mission as Skyscrapers.

Our April Meeting featured our own Steve Hubbard. He exposed us all to the wonders of modern technology as it relates to astro-imaging and viewing through the use of his Mallincam video camera. Steve treated us to some wonderful pictures he

captured with this device. He informed us he is still learning the nuances of the Mallincam, so I look forward to seeing additional photo's in the future. Steve is also intending to have the Mallincam set-up on the 16" Meade from time to time and I urge all to take the opportunity to see the views it provides. You will be amazed. Let me extend a thank you to Steve Hubbard from all of us for sharing the amazing capabilities of the Mallincam.

Our business meeting followed, the results of our election were announced by Dave Hurdis. Penny Lesperance and Dave Hurdis tallied the ballots that evening revealing the re-election of myself as President, John Briggs as 1st Vice President, Ed Haskell as Secretary, Jim Crawford as Treasurer, and Gene Kusmierz as Member at Large. The results also revealed Kathy Siok as our newly elected 2nd Vice President, Jim Hendrickson as Member at Large, and Steve Siok as Trustee. Congratulations to all and I look forward to working with you all as well as our current Trustee's Tom Barbish and Pat Landers. Let me thank Ed Haskell and Linda Bergemann for heading our Nomination and Election Committee's. The hard work by both of you and your assistants is greatly appreciated by myself and the society.

Our 2011/2012 Operating Budget was discussed and approved by vote of the membership. I thank all those who participated in the discussions and the support of all the membership in its approval. The conclusion of our elections and approval of our operating budget has paved the way for another successful year for Skyscrapers.

Lastly, a number of members' activities were announced for the end of April, a visit to the Charles Hayden Planetarium, Constellation Night, and CCD Marathon. I sure all will find an interest in one or more of these, so come join us. Information regarding these activities can be found on our Web Site, <http://www.theskyscrapers.org/>

Clear Skies

Tom Thibault



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.

President

Tom Thibault DeepSpaceViewer@aol.com

1st Vice President

John Briggs john.w.briggs@gmail.com

2nd Vice President

Steve Hubbard cstahs@yahoo.com

Secretary

Ed Haskell hasskell.ed@gmail.com

Treasurer

Jim Crawford jcrawford@cox.net

Members at Large

Steve Siok ssiok@cox.net

Gene Kusmierz gkusmierz@cox.net

Trustees

Jim Brenek jbrenek@cox.net

Tom Barbish labtjb@verizon.net

Pat Landers pl64@comcast.net

Star Party Coordinator

Bob Forgiel bforgiel@cox.net

Librarian

Amber Lesperance ambie630@yahoo.com

Historian

Dave Huestis dhuestis@aol.com

Editor

Jim Hendrickson jim@distantgalaxy.com

Directions

Directions to Seagrave Memorial Observatory are located on the back page of this newsletter.

Submissions

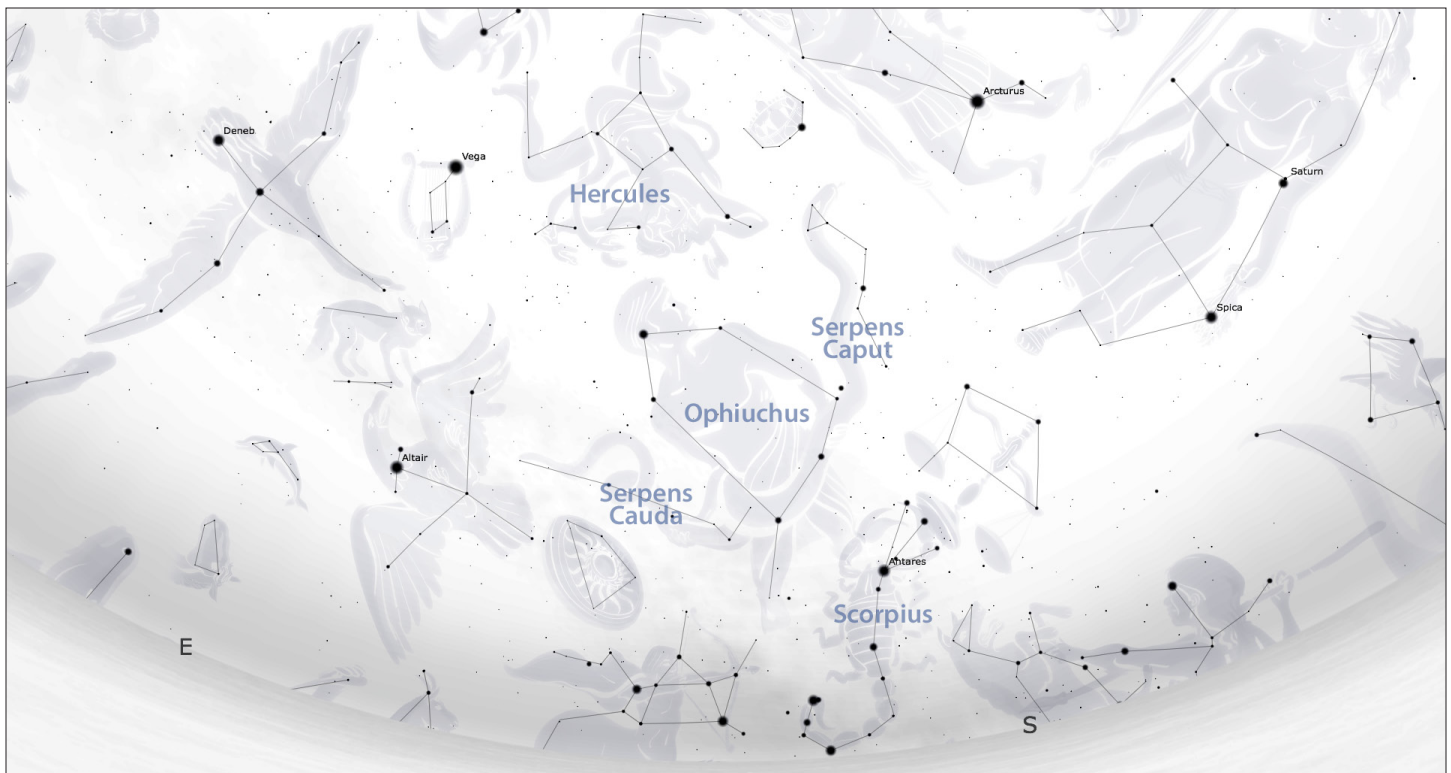
Submissions to The Skyscraper are always welcome. Please submit items for the newsletter no later than **May 18** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to jim@distantgalaxy.com.

E-mail subscriptions

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The Constellations in May

Francine Jackson

As the sky begins to remind us that a new month is approaching, we are able to see a constellation that is often forgotten, but much more important than we usually let on.

Coming into view is Ophiuchus, the Doctor, the person who is credited with creating the elixir allowing us eternal life; unfortunately, this didn't go over very well with Pluto, god of the underworld, who realized he'd lose his incoming subjects. Therefore, he sent a serpent up to Ophiuchus, with the result if the Doctor won, we'd all live forever; a snake victory and Pluto would continue his population increase.

Now, at this point, we have to consider the actual definition of a constellation. We normally think of one as a certain picture (real or imagined) in the sky. Actually, a constellation is a section of the sky. We now have, and most likely will continue to have, 88 constellations. But, the sky is broken into 89 parts, much like a spherical jigsaw puzzle. On either side of Ophiuchus is a

part of the animal he is fighting, Serpens. From our perspective, as we are looking at him, to the right, or west side of him is the portion of Serpens containing his head, Serpens Caput. To the east of Ophiuchus is Serpens Cauda, the snake's tail. In a good sky, you might be able to see the entire snake across the Doctor's body, but, as two objects can't inhabit the same place in the sky, that belongs to Serpens' adversary.

Above Ophiuchus is another great person, Hercules. Many of his labors are in various parts of the sky, so it is fitting he should be enjoyed also. He is rather easy to identify because his basic shape is his initial, a capital "H," and his body consists of yet another of the sky's crooked squares, an asterism called the Keystone, which looks nothing like the one on Pennsylvania license plates. Looking on the right, or west side of the top of the Keystone, then moving about a third of the way downward, you might just be able to see a fuzzy-looking starlike object, if you are in a dark sky. Otherwise, do this with your binoculars and you will find one of our better globular clusters, M13. This giant member of our galaxy contains about 1,000,000 stars so tightly packed that our eyes can not resolve them individually. Actually, Hercules has a second of these globular clusters, M92. Try to locate that one above and to the left of M13, near Hercules' leg.

Below Ophiuchus is one of the easiest shapes to recognize, Scorpius, the Scorpion. This constellation from our latitude is perfectly seen, as his lower body just skims

across our southern horizon. Scorpius is the animal credited with killing Orion, the Hunter. Because of this, the two can not be seen in the sky at the same time. As the scorpion now desires to be seen, Orion must leave. He can only return to our evening skies when Scorpius allows him to by setting in the western sky later in the year.

Although to us this image is a perfect animal, Hawaiian mythology has this as a fishhook, cast by the fisherman Maui. The hook got caught on the bottom of the ocean, and when Maui finally pulled it up, along with it came the Hawaiian islands.

The scorpion's stinger, to the American Indians, was a very important part of their planting season. Those four stars reminded them of rabbit tracks. There are several of these tracks in the sky, but these were especially relevant, as when they were first rising out of the eastern horizon, it became planting time. The tracks, when visible due south, noted the central crop time, and when they were setting in the west, it was time to harvest.

Scorpius also is given more credit than it is due with respect to the position of the Sun in this part of the sky, as the scorpion is considered one of the twelve constellations through which the Sun travels during the course of the year, the zodiacal constellations. Actually, the Sun only visits Scorpius for about a week; for the rest of the "scorpion time" the Sun is located in Ophiuchus. Don't tell your astrologer friends, though. They won't add the Doctor to their charts.

Shooting Stars of May

Dave Huestis

It's been four months since we have been treated to a decent meteor shower display. You may have braved the cold but clear skies on the morning of January 4th to watch some members of the Quadrantid display blaze across the sky. I counted ten Quads and one sporadic in a 50 minute observing session just before dawn's early light brightened the sky. Most of the meteors were very short and not very bright. Only a couple of them reached brightness (magnitude) that didn't even quite rival that of the brightest star in the sky, Sirius. And only a couple passed through several constellations as they traversed the sky in their fiery demise.

Well, reserve an hour or so on the morning of May 6 to watch for the Eta Aquarids meteor shower. Observing conditions are as favorable this year as they can be for this display. Still, it can be a challenge to observe. The Moon (New on the 3rd) will not be a factor, since it will appear as a slender waxing crescent on the evening of the 5th and will set around 10:19 pm. However, the shower's radiant point is in the Water Urn asterism (looks like a Y-shaped group of stars) of Aquarius and will not rise very high above the eastern horizon during the peak viewing time.

Also, at this time of year, morning twilight (dawn's early light) actually begins around 3:46 am. At that moment the radiant point within Aquarius is no more than 12 degrees above the eastern horizon. Combine that with the Sun rise time of 5:36 am and you've got a short observing window to catch a glimpse of a few meteors.

I would suggest starting your observing run around 3:30 am and continuing for about an hour, or at least until all but the brightest stars fade from view. Pick an observing site well away from any light pollution source and make yourself comfortable in a lawn chair. Scan the sky back and forth from the eastern horizon towards the zenith. Hopefully the temperature will be mild so

you won't miss any meteor due to chilly toes!

Though this meteor shower is best seen from the southern hemisphere, it is unfortunately an old and declining one. The particles we see hitting our upper atmosphere were shed by Halley's Comet long ago and left in orbit about the Sun. Every year the Earth passes through this meteor stream. As such, due to the observing circumstances here in the northeast, you can expect to see perhaps up to twenty swift, yellow Eta Aquarids per hour.

The swarm of particles comprising the meteor stream hits the Earth's upper atmosphere nearly head-on at 41-miles per second. This high-speed collision results in forty percent of the meteors leaving long persisting dust trains. Also, because we will be observing the radiant point near the horizon, this scenario tends to produce "earthgrazers," shooting stars that blaze long and slow along the horizon. A relatively unobstructed view of the eastern horizon will help to see as many of these earthgrazers as possible before morning twilight swallows up the stars.

Let's hope the weather will cooperate for

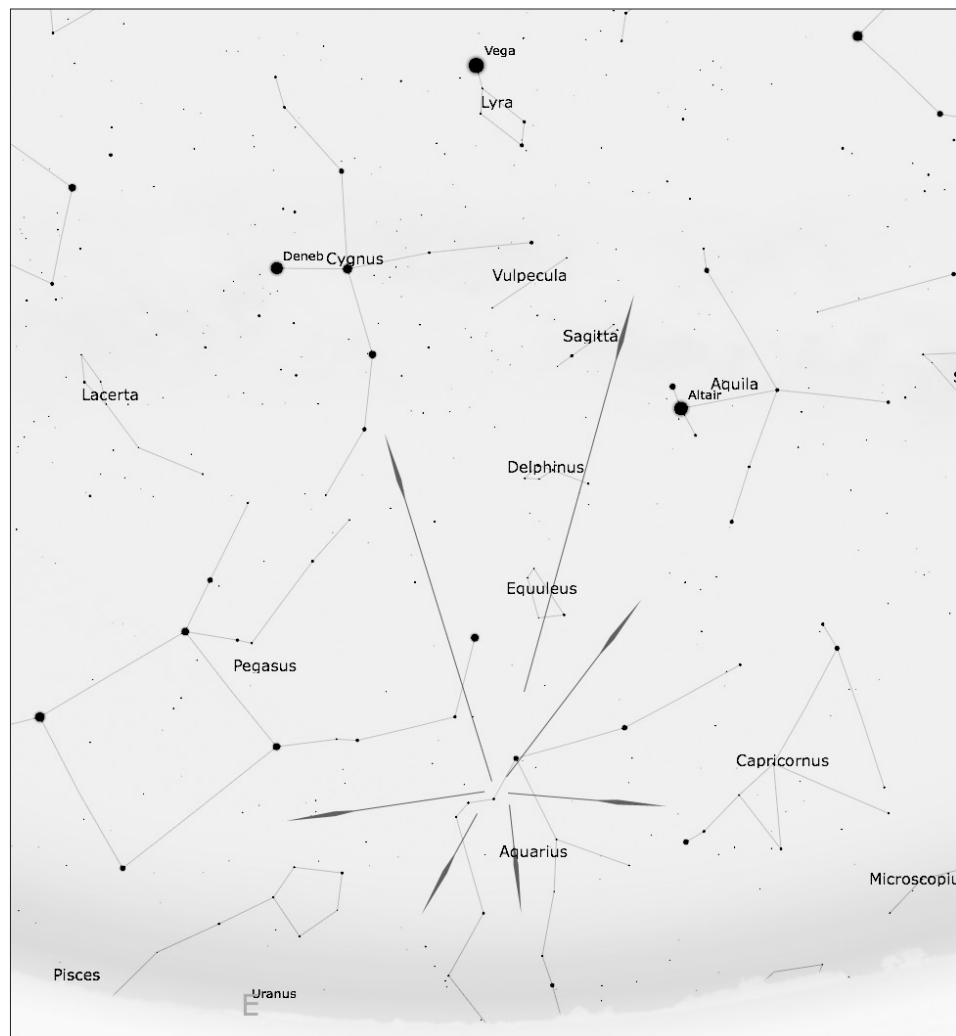
this brief shower of shooting stars on the morning of May 6.

And finally, if you haven't visited any of the local observatories this year to observe the magnificent beauty of Saturn and his rings (now tilted just less than ten degrees from the horizontal), then by all means plan to schedule a trip on the next clear night that public observing is offered. Saturn will be visible all summer long. The view through the large telescopes at these facilities is spectacular. Plus, there is no admission fee for these scheduled sessions. What a bargain for a family night out!

Before packing up the family for a ride out to Seagrave Memorial Observatory (<http://www.theskyscrapers.org>) in North Scituate on a Saturday night, or out to Ladd Observatory (<http://www.brown.edu/Departments/Physics/Ladd/>) in Providence on the next Tuesday night, be sure to check their websites for the public night schedules and opening times.

Both of these facilities offer a unique observing experience.

Keep your eyes to the skies.





Kennedy Space Center: The Gateway to the Stars

Tom Thibault

It was many years ago when I was the young age of 11. My father was in the Air Force and he was stationed in Orlando, Florida. We were living in the suburbs to the northeast of the city, and I have many fond memories of my two years there. I spent my time as all kids my age do, playing with friends, and exploring my surroundings. The weather there was always warm and I recall on many occasions accompanying my father on days of fishing. We would spend the entire day at locations like the St. John River and George's Lake. These fishing excursions also included the Indian and Banana River which is on the east coast just below Cape Canaveral. This was a great time in my life and like most of us I look fondly back on those days, when life was simpler and our

thoughts were filled with wonder.

One topic that occupied my thoughts from time to time was space travel. I was lucky enough to be in Florida during the Apollo era and can vividly recall witnessing launches from my backyard amongst the orange trees. While Cape Canaveral was a good distance to the east of us, the structure of the rocket could be made out as it rose above the tree line and houses. Its profile was a bright white color with flames trailing below it of equal or greater length. As the rocket picked up pace speeding to the heavens, trailed behind it was a long tail of expanding white smoke. As I strained my neck back to its farthest point, a bright flash appeared and the first stage could be seen separating. As the rocket continued to speed

skyward, one could see the first stage fall and tumble away.

This experience was a beautiful sight I will never forget. We were preparing for the mission that would someday place a man on the moon and I was lucky enough to be witnessing it firsthand. Unfortunately, my father was transferred prior to the launch of Apollo 11 and I was unable to witness that historic launch.

My father's next assignment brought us to the Azores, Portugal, a group of islands in the Atlantic Ocean. These islands are the tops of mountains of the mid-Atlantic Ridge that have broken through the surface of the ocean. It was there I can recall, as many of you, watching those grainy black and white television pictures of Neil Armstrong stepping off the ladder of the Lunar Lander and onto the surface of the moon. I never looked at the moon the same again. I recall sitting on the concrete wall of the front porch and watching the moon rise up from behind a large hill behind houses on the other side of the cobblestone road. My thoughts were of the Apollo crew and what it would be like to be there looking back at earth. What would it be like to be standing on the surface of the moon, surveying the landscape in front of you? This was an exciting time—the impossible had been achieved and all thoughts were of what the future would bring.

The Apollo missions continued and my family moved from one home to another. Our space programs continued with the conclusion of Apollo missions and the creation of the Space Shuttle. Now here is a real spaceship, one that can be flown back to earth and re-used time and time again. What a marvel it is to be able to witness its return to earth, unlike the Apollo capsules which floated back to earth below three air filled parachutes far out in the Pacific Ocean. The shuttle's graceful return can be witnessed by anyone willing to travel to either Florida or California, dependant upon the weather. Well, this era is coming to an end as did the Apollo, Gemini, and Mercury missions prior.

It's been 45 years from those days of my youth as I watched in awe as the Apollos rose from Cape Canaveral. I was determined to witness firsthand the end of the Space Shuttle Program. The following is an account of the trip my wife Lisa and I made to witness the launch of STS-134. Our itinerary included a visit to my parents in Largo, next to Tampa, for a few days, followed by four days in Cocoa Beach. I purchased our

tickets to Kennedy Space Center as well as a bus tour to view STS-134 on launch pad 39A, one of the gateways to the stars.

Well, a week or two prior to our departure we received the bad news; the shuttle launch had been delayed for 10 days, so we would miss witnessing the launch. We decided not to delay our vacation. The following story chronicles our visit to Kennedy Space Center (KSC).

We arrived at KSC Sunday at 10:00am on April, 17th and were greeted to cloudless skies and temperatures in the mid 80's. Our bus tour was scheduled for 1:00pm, so the plan was to take in some of the sights at the Visitor Center first. Upon exiting the entrance building you are greeted by the NASA logo located in the center courtyard of the visitor center facility. Directly behind it is a full scale model of the Orion Capsule which is slated to replace the shuttle. The Orion in the future will be ferrying up to six passengers to the Space Station and possibly beyond.

A short walk to your left brings you to the outdoor Rocket Garden, which features the space ships of our past. There one can walk around completely assembled Mercury and Gemini rockets standing upright in launch position, while the Saturn rocket lies on its side due to its height. Alongside each was a replica of their capsules allowing visitors to enter and experience the cramped quarters our astronauts had to contend with during those early ascents into space. On display next to the Saturn, in addition to the replica of the Apollo capsule, was an actual capsule along with a portion of the entry gantry. Visitors walk across the gantry to the capsule and view the interior through the plexi-glass covered entry door. Alongside the Saturn was also one of the massive rocket engines that roared to life many years ago. More on this later.

The right side of the facility featured

the Space Shuttle, which included full size replicas of the shuttle, main fuel tank, and booster rockets. (The area also includes the Shuttle Experience building which we did not enter during our visit.) We did take the opportunity to enter the shuttle replica. Visitors can enter at two levels. The lower

large wall of black granite panels inscribed with the names of those who have paid the ultimate sacrifice in America's pursuit of space exploration. This area also displayed a bronze plaque dedicated to these brave individuals. This entire area is actually the front of the visitor center and is positioned so that



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level featured the cargo bay and lower level crew seating. The cargo bay has a satellite payload towards the back for added effect. The top level featured the pilot and crew seating along with flight controls. The cargo bay can also be seen from this vantage point and provided a great view of the articulating mechanical arm. The size of the cargo bay is impressive and allows one to imagine the size of the Hubble Telescope which was carried into space by the shuttle.

Moving to the rear of the facility is a

all those arriving pass it when driving to the entrance of the Kennedy Space Center.

Well, 12:45pm quickly arrived and it was time to queue up for our bus tour. The tour was the "Then and Now Tour" which included visits to the historical Saturn era and all current major facilities associated with the missions of the Space Shuttle. Our first stop was at the viewing bleachers utilized by those lucky enough to acquire one of the limited numbers of close viewing tickets. This location is 3½ miles from the launch



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pad. We then proceeded past the Vehicle Assembly Building and on to the housing facilities for the current mission astronauts. This is the building that is seen when video shows the crews prior to boarding the van to the space craft. The adjacent buildings in this area include the washing and drying machines for the booster rocket parachutes.

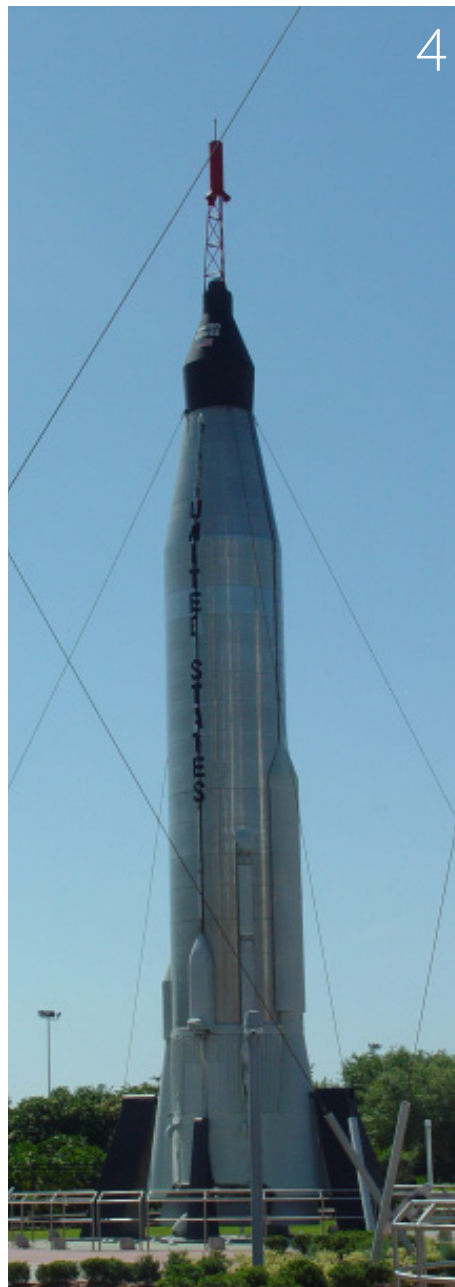
During our tour from facility to facility we encountered a number of the local wildlife, which included manatees, bald eagles, vultures, wild pigs, and of course Jim Hendrickson's favorite - 'gators. The wild pig was dead and lying on the side of the road and looked to weigh 150-200 pounds. He also appeared to be the guest of honor at the Pork-Quetta that 20-30 vultures were attending. The bald eagles were a pair of juveniles roosting in a tree next to their nest. One sat quietly while the other flapped its wings, perfecting its flying skills. The Manatees were swimming in the saltwater waterways and the 'gators were sunning themselves on the banks of the water culverts. Our tour guide informed us that just prior to a launch pyrotechnics are set off to persuade the wildlife to either flee or hide in order to avoid the concussion produced by the launch.

We continued on past the viewing gantry, rocket booster barge, and launch platform crawler on our way to the closest vantage point for viewing the shuttle poised at Pad 39A. We were then within less than a mile of the pad, and were informed that at this location the concussion at launch would stop your heart. This is where I snapped some of my best pictures of the Space Shuttle. This location provided great views of the underside of the main fuel tank and booster rockets. Large white spherical tanks could be seen at a distance to each side of the shuttle. These stored the liquid hydrogen fuel for the shuttle. The fueling of the shuttle does not occur until 24 hours prior to launch. During the tour we did pass the pad that would allow a view of the actual shuttle craft, but due to the roll away gantry could not be seen. We were informed that the gantry is positioned to protect the shuttle from birds and weather, and is only moved 24 hours prior to launch as well. The final areas we visited included the platform crawler pathway, the Vehicle Assembly Building, and the shuttle landing runway and control tower. We were informed that during final approach the shuttle flies from Australia to Florida in 1 hour. Final approach pitch is three times that of a commercial airliner and twice the speed.

Our tour ended with a visit to the Saturn/Apollo visitor center. This is where the roar of the Saturn rocket I noted earlier comes into play. Visitors are treated to a video on three large screens of clips of television shows, sporting events, and news events that were occurring during December, 1968. We were then lead into the actual Launch Control Room, where we were treated to a recreation of the historic Apollo 8 launch on the 21st at 7:50 am EST. The countdown started at five minutes and just prior to zero the roar of the engines began. When zero arrived the roar became deafening, the windows were rattling and the benches we were sitting on began shaking. This all subsided as the rocket gained altitude and made its way into space. The following web link, <http://www.youtube.com/watch?v=XKtH0uzg8wU>

provides the view of this historic launch. The show ended and we exited into the main room of the building that houses the Saturn rocket with all five engines attached. A number of educating displays peppered the floor surrounding the rocket. Very nice.

We returned to the Main Visitor Center and concluded our day there with a movie at the IMAX Theater. My wife and I chose to see the Hubble 3D movie. This was a great film that showed Hubble's launch, deployment and subsequent service missions, as well as a tour of the universe as seen by Hubble's cameras. The three-dimensional





views were amazing and I was blown away. If you have the opportunity, definitely see this film at an IMAX in 3D. I recommend it to everyone.

We ended the day at 5:30pm, a full 7 ½ hours after we had started. But we only scraped the surface of what could be seen. It was quite a memorable experience and I highly recommend a visit to the Kennedy Space Center to all that have the opportunity to spend some time at the Cape Canaveral area.

- Photos in this article by Tom & Lisa Thibault.
1. Tom with STS-134 Endeavour on Pad 39A.
 2. Tom and Lisa in front of the Vehicle Assembly Building.
 3. Saturn rocket.
 4. Mercury Atlas rocket.
 5. Gemini rocket.
 6. Astronaut memorial plaque.
 7. Orion Capsule.



Glenn Chaple's
Sky Object of
the Month

3C 273 Quasar in Virgo

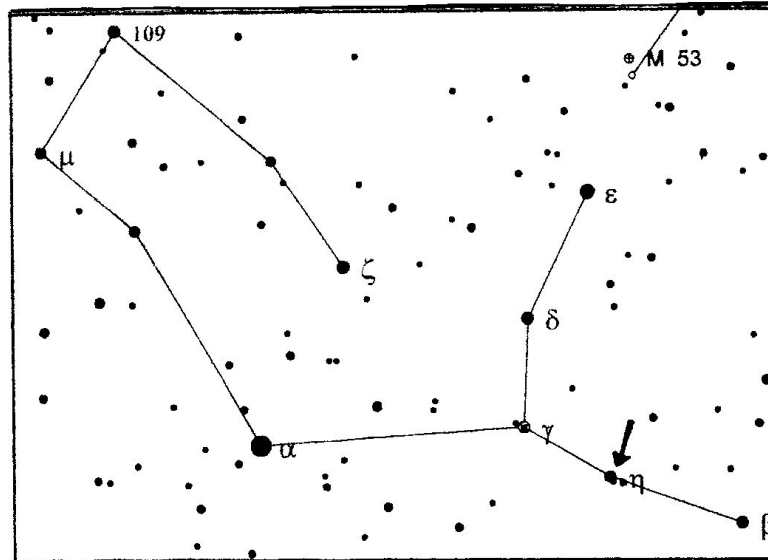
“How far can you see with that telescope?” It’s a question I occasionally hear from visitors who peer into my telescope at public star parties. The farthest my telescopes have taken my eye, I tell them, is 2 billion light years - to the quasar 3C 273.

Visually, 3C 273 isn’t much of a “wow” object. It appears as little more than a 13th magnitude star in the constellation Virgo. But what a “star” it is! Like all quasars, 3C 273 is the active core of a distant galaxy. There, a supermassive black hole swallows incredible amounts of gaseous material, in the process releasing as much light as 100 Milky Way Galaxies.

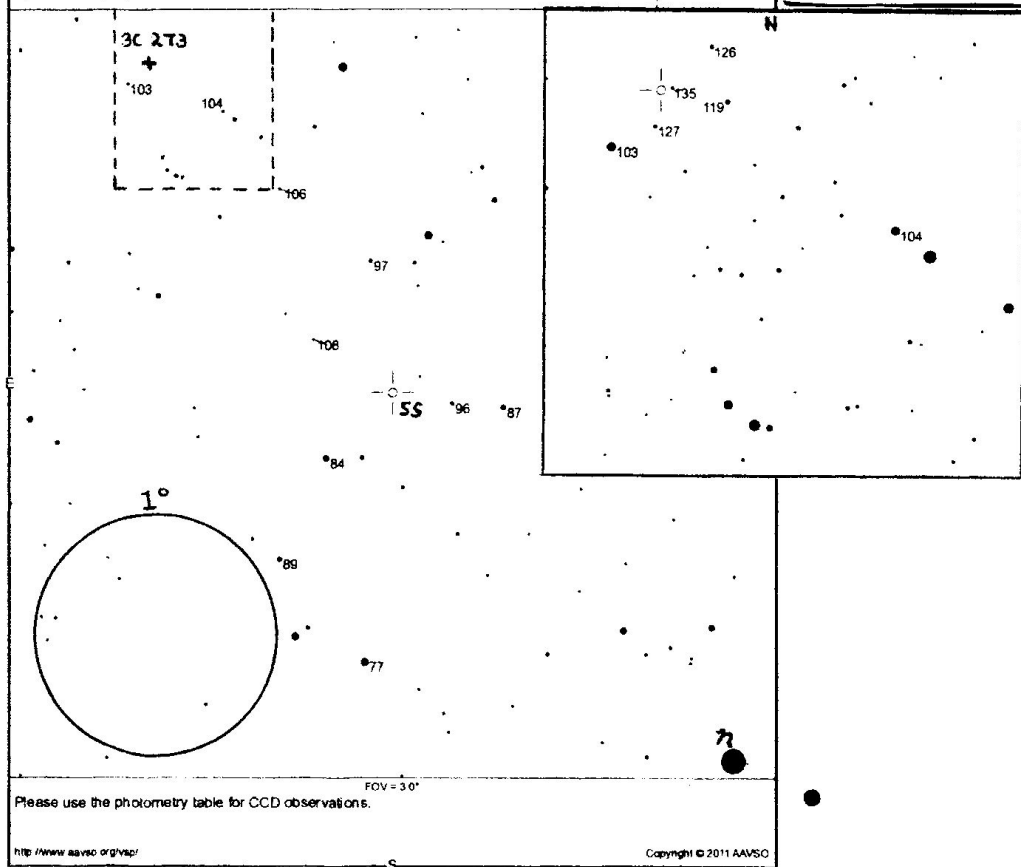
Your 2 billion light year journey to 3C 273 begins with the naked eye star eta (η) Virginis. The accompanying charts will enable you to star-hop from there to 3C 273. Along the way, you’ll encounter SS Virginis, a carbon star noted for its rich red hue.

As you gaze at 3C 273, ponder this amazing fact. Those photons striking your retina began their journey earthward during the Precambrian Age when the dominant life forms on this planet were microscopic one-celled organisms. WOW!!!

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



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(Top) Finder chart for 3C 273
From Cartes du Ciel
(Bottom and inset) Detailed finder charts for 3C 273
Courtesy AAVSO (magnitudes of field stars shown, decimals omitted)

Cosmic Recount

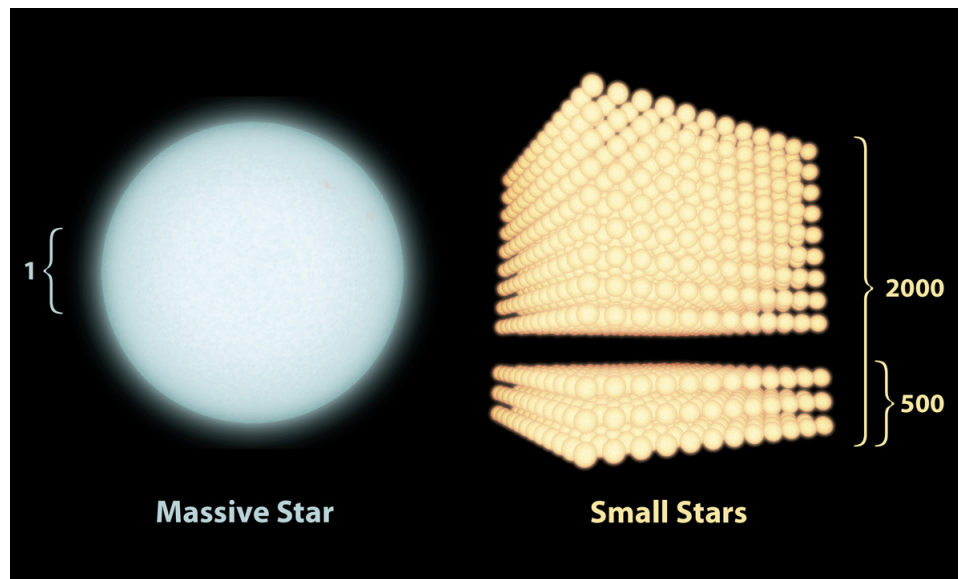
Dr. Tony Phillips

News flash: The Census Bureau has found a way to save time and money. Just count the biggest people. For every NBA star like Shaquille O'Neal or Yao Ming, there are about a million ordinary citizens far below the rim. So count the Shaqs, multiply by a million, and the census is done.

Could the Bureau really get away with a scheme like that? Not likely. Yet this is just what astronomers have been doing for decades.

Astronomers are census-takers, too. They often have to estimate the number and type of stars in a distant galaxy. The problem is, when you look into the distant reaches of the cosmos, the only stars you can see are the biggest and brightest. There's no alternative. To figure out the total population, you count the supermassive Shaqs and multiply by some correction factor to estimate the number of little guys.

The correction factor astronomers use comes from a function called the "IMF"—short for "initial mass function." The initial mass function tells us the relative number of stars of different masses. For example, for every 20-solar-mass giant born in an interstellar cloud, there ought to be about 100 ordinary sun-like stars. This kind of ratio allows astronomers to conduct a census of all stars even when they can see only the behemoths.



Astronomers have recently found that some galaxies have as many as 2000 small stars for every 1 massive star. They used to think all galaxies had only about 500 small stars for every 1 massive star.

Now for the *real* news flash: The initial mass function astronomers have been using for years might be wrong.

NASA's Galaxy Evolution Explorer, an ultraviolet space telescope dedicated to the study of galaxies, has found proof that small stars are more numerous than previously believed.

"Some of the standard assumptions that we've had—that the brightest stars tell you about the whole population—don't seem to work, at least not in a constant way," says Gerhard R. Meurer who led the study as a research scientist at Johns Hopkins University, Baltimore, Md. (Meurer is now at the University of Western Australia.)

Meurer says that the discrepancy could be as high as a factor of four. In other words, the total mass of small stars in some galaxies could be four times greater than astronomers thought. Take that, Shaq!

The study relied on data from Galaxy Evolution Explorer to sense UV radiation

from the smaller stars in distant galaxies, and data from telescopes at the Cerro Tololo Inter-American Observatory to sense the "H-alpha" (red light) signature of larger stars. Results apply mainly to galaxies where stars are newly forming, cautions Meurer.

"I think this is one of the more important results to come out of the Galaxy Evolution Explorer mission," he says. Indeed, astronomers might never count stars the same way again.

Find out about some of the other important discoveries of the Galaxy Evolution Explorer at <http://www.galex.caltech.edu/>. For an easy-to-understand answer for kids to "How many solar systems are in our galaxy?" go to The Space Place at: <http://tiny.cc/I2KMta>

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

April Reports

Ed Haskell, Secretary
Jim Crawford, Treasurer



Skyscrapers Minutes April 1, 2011 North Scituate Community Center

Program: President Tom Thibault introduced the speaker, former Skyscrapers president Steve Hubbard. Consistent with the spirit of the date (April 1) the audience met every item in the recitation of the long and distinguished experiences of Steve in amateur astronomy with loud and enthusiastic ooohs and aaahhs.

Abstract: When I started observing over 35 years ago, visual observing was fun. Modest sized telescopes could show most deep sky objects visually from locations even near big cities. Since then, light pollution has wiped out much of the night sky view for us. From my backyard near Worcester, ever growing light pollution has erased my ability to see all but the brightest deep sky objects even with a 16 inch telescope. Since obtaining a Mallincam imaging system a year ago, my interest in observing has been revitalized by amazing color images in real time literally

cutting thru the light pollution and giving views similar to those through telescopes 3 times the size that the Mallincam is attached to. The Mallincam is a small miracle with incredible sensitivity and versatility that is revolutionizing observing.

Business Meeting: 34 members in attendance.

Secretary's Report adopted with no changes from floor.

Treasurer's Report was heard.

Trustees: Observatory will be open tomorrow weather permitting. Last two Saturdays have seen good turnouts. The tree removal has started and the view is already improved.

This evening was the Annual Meeting of Skyscrapers, Inc. **Elections were held** and the results announced. Elected for the 2011-2012 term were: Tom Thibault, President, John Briggs, 1st VP, Kathy Siok, 2nd VP, Ed Haskell, Secretary, Jim Crawford, Treasurer, Gene Kusmierz and Jim Hendrickson, Members at Large, and Steve Siok, Trustee.

Old Business: The 2011-2012 Operating Budget was presented in detail and adopted without dissent.

New members approved: Robert and Madison Bazinet, and Steven Fraray.

New Business: None

For the Good of the Organization: A number of members contributed recollections of observing coffins at Seagrave Observatory.

Dave Huestis reported on Town of Scituate turning off 70 percent of town's street lights.

Bill Luzader reminded us of the April 30 trip to Hayden Planetarium in Boston. Details will be furnished by email and on the website.

Al Hall announced the upcoming Starconn to be held June 4. Program is online at <http://www.asgh.org/starconn/StarConnSchedule.htm>

An article about our Alvin Clark telescope has been accepted for publication this year in *Sky & Telescope* Magazine.

Steve Siok reported that several members are volunteering at Harvard College Observatory to scan 110 years of glass plates made during HCO observations. The data base created will be of inestimable value to investigators. More volunteers are needed.

Dave Huestis reported that the first Quarterly Members Night session will focus on constellation study beginning at 6:45 pm on the 29th. Future sessions will cover topics such as scale of the solar system, solar observing, telescopes and eyepieces, etc.

Cash Flow 3/1/2011- 3/31/2011

INFLOWS

| | |
|----------------------|-----------------|
| Donation | \$58.00 |
| Dues | |
| Family | \$200.00 |
| Regular | \$200.00 |
| Senior | \$40.00 |
| TOTAL Dues | \$440.00 |
| Interest Inc. | \$11.24 |
| Magincome | |
| Astronomymaginc | \$34.00 |
| Skytelmagincome | \$32.95 |
| TOTAL Magincome | \$66.95 |
| TOTAL INFLOWS | \$576.19 |

OUTFLOWS

| | |
|---------------------------|-----------------|
| Election Committee | \$83.68 |
| membersubscriptions | |
| Astronomymagexp | \$34.00 |
| Skytelexp | \$32.95 |
| TOTAL membersubscriptions | \$66.95 |
| Postage and Delivery | \$4.80 |
| Refreshment Expense | \$12.00 |
| Trusteeexp | \$65.00 |
| Utilities: Electric | \$9.09 |
| TOTAL OUTFLOWS | \$241.52 |

OVERALL TOTAL

\$334.67

| | |
|-------------------|-------------|
| Cash Accounts | |
| Citizens Checking | \$2,944.28 |
| Capital One | \$16,517.26 |

Bob Horton is organizing a CCD imaging marathon for members who have CCD imagers to show their devices to members. Now that Bob has planned the session it will definitely rain.

Adjourned at 9:48 pm.

Respectfully submitted
Ed Haskell, Secretary

Historical Copies of Sky & Telescope for Sale by GPDyck

Hello to my Astro-Friends,

I need to slim down my astro library and have decided to let my old volumes of Sky & Telescope go, as follows:

20 years, complete, bound and in good condition: 1973, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 2002

2 years, incomplete, unbound, and in fair condition:

2000 – 10 months, 2003 – 5 months

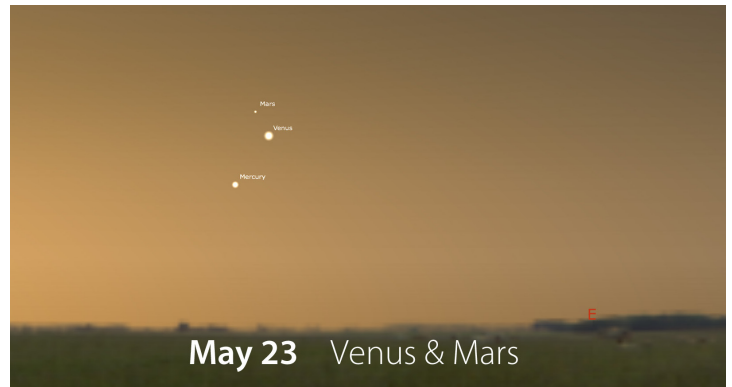
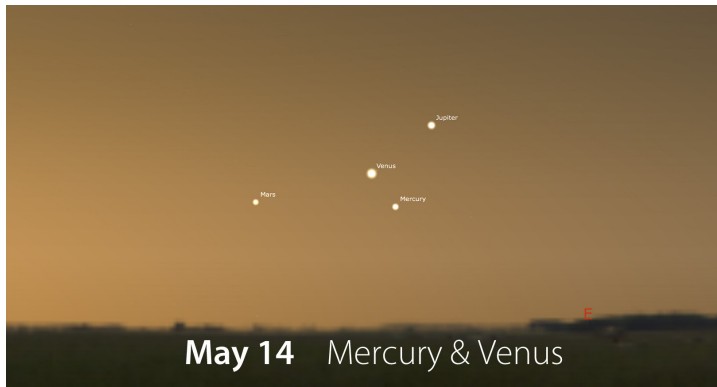
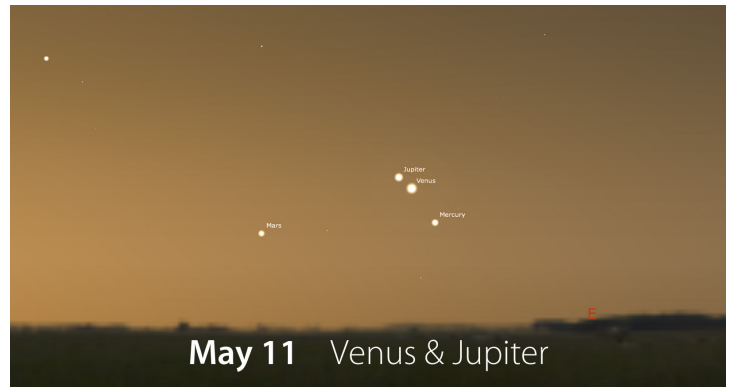
Will sell the whole lot for best offer above \$99.

Contact Gerry Dyck at geraldpdyck@yahoo.com

I would be grateful if you be interested in such a bargain, or if you could post this notice for others to see.

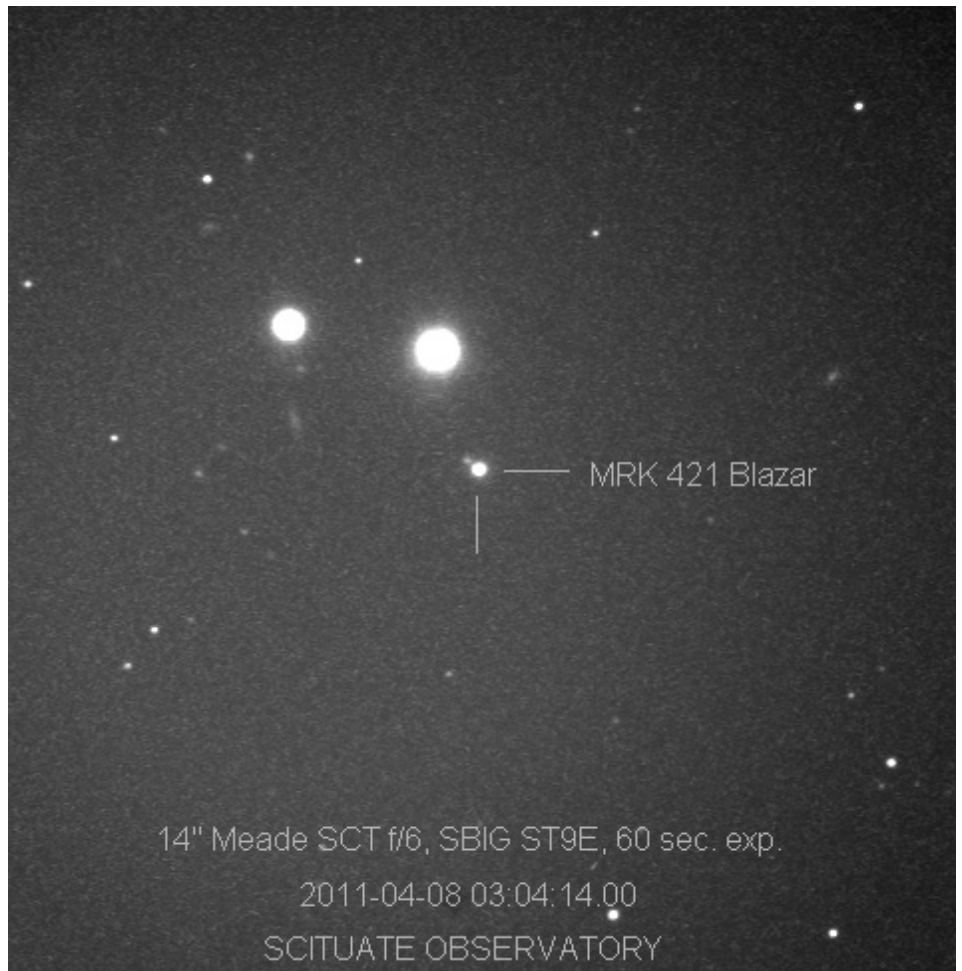
Thank you, Gerry

While Saturn continues the grace the evening sky, the four other naked-eye planets join up for multiple conjunctions in the morning sky, putting on a show that lasts all month.



Markarian 421

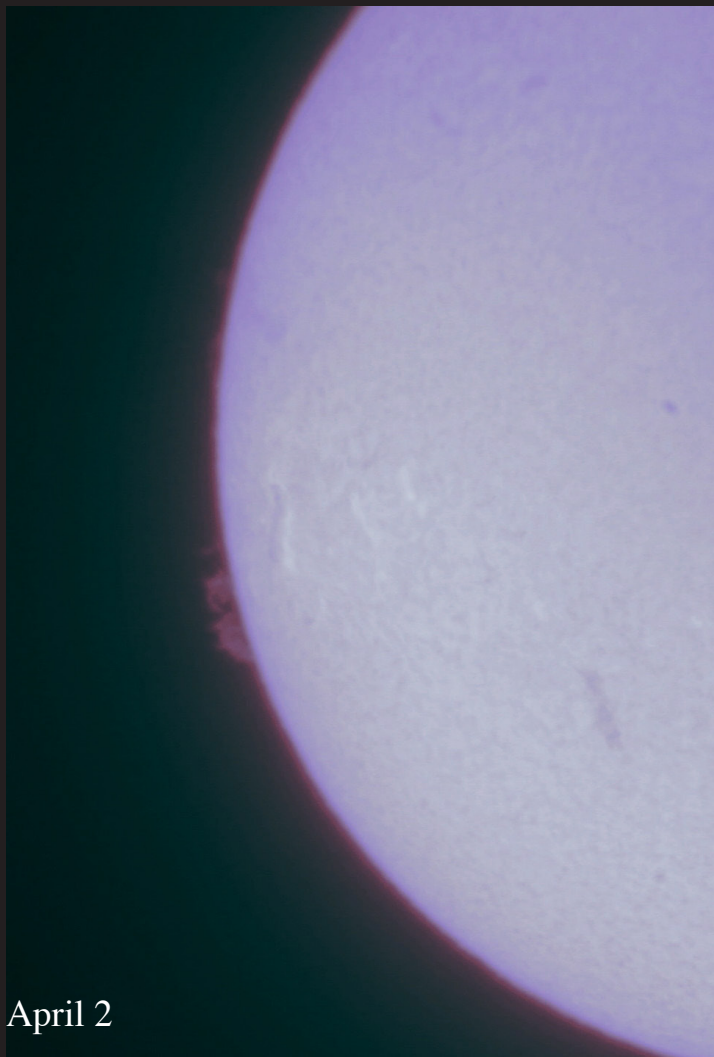
In a follow-up to last month's article by Craig Cortis on how to locate this enigmatic object in Ursa Major, Bob Napier provides this image of the blazar.



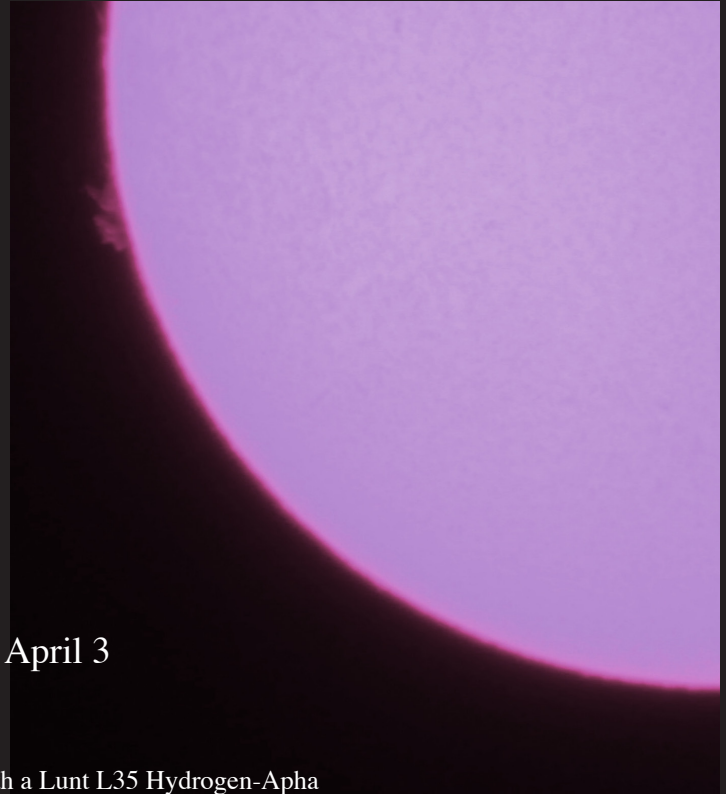
*If you have
observing reports or images,
please submit them to
jim@distantgalaxy.com*

Solar Activity in April

Conrad Cardano

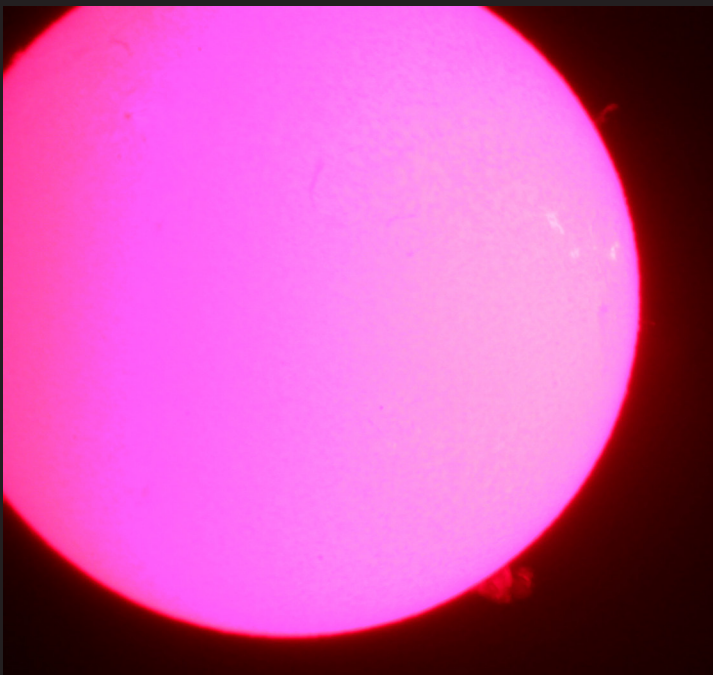


April 2



April 3

All of the photos were taken with a Lunt L35 Hydrogen-Alpha scope, a Canon Rebel T1i camera, and eyepiece projection.



April 6

There is a large prominence in the lower right hand corner of the sun.

There are three bright areas, called a phage, on the upper right hand side of the photo.

A faint filament can be seen in the middle of the photo.

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