The Skyscraper
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The monthly publication of

Amateur Astronomical Society of Rhode Island

47 Peeptoad Road
North Scituate, RI 02857

www.theskyscrapers.org

See back page for directions to Seagrave Observatory.

Submissions
Please submit items for the newsletter by August 15 to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or email to jim@distantgalaxy.com

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The Skyscraper

August 2006

August Meeting with Dr. Ron Remillard

Friday, August 4th, 7:30pm at Seagrave Observatory

Dr. Ron Remillard of the Kavli Institute for Astrophysics and Space Research at MIT will present **"X-Ray Observations of Black Holes in the Milky Way."**

Dr. Remillard has led a team of scientist that have found new evidence that black holes are performing the disappearing acts for which they are known. The team has found that a certain type of x-ray explosion common on neutron stars is never seen around their black hole cousins. This is strong evidence for the existence of a theoretical border around a black hole called the event horizon, a point from beyond which nothing, not even light can escape.

Renewals

Membership renewals are now past due. There is a renewal form on the back page of the April *Skyscraper* and on the web at http://www.theskyscrapers.org/membership/

August 2006

4 Friday	7:30pm	**August Meeting** Seagrave Observatory
5 Saturday	8:30pm	**Public Observing Night** Seagrave Observatory, weather permitting
12 Saturday	8:30pm	**Public Observing Night** Seagrave Observatory, weather permitting
19 Saturday	8:30pm	**Public Observing Night** Seagrave Observatory, weather permitting
26 Saturday	8:30pm	**Public Observing Night** Seagrave Observatory, weather permitting

In This Issue

President's Message

Dave Huestis, President

Thank you to everyone who made our July picnic a big success. I especially thank our Events Coordinator Dolores Rinaldi and her crew, Jack and Ileen Szelka, and Joe and Jackie Sarandrea. We couldn't do it without the dedication of all of you.

Thanks to Tina Huestis for providing the fresh fruit salad. I don't think there was a bit of it left at the end of the picnic.

Thank you Joel for your much appreciated assistance with the grilling of the burgers and dogs!

Thank you also to Mercedes Rivero, Linda Bergemann, Kay Peterson, and Tracey Haley for providing cupcakes with which we honored our dear friend Vivian Hartnett, inventor of the "cupcake sandwich."

And thanks to the clean-up crew, Rick Arnold, Maria and Marion Juskuv and Tracey Haley.

Great job everyone.

Don't forget that at this meeting under Old Business we will be discussing and voting on the motion to accept the proposed changes to the Skyscraper Constitution and Bylaws as approved by the Executive Committee. The proposed changes were printed in the July issue of the Skyscraper, and they are also still available online.

I'd also like to remind folks that dues were payable in April. If you have been busy and have simply forgot to send in your payment please do so at your earliest convenience. Members more than 3 months in arrears are considered delinquent and their membership privileges will be suspended until payment is received. A separate emailing was sent during July to hopefully prevent memberships from lapsing.

We are pleased to have Dr. Ron Remillard as guest speaker for our August meeting. Dr.

Remillard, of the Kavli Institute for Astrophysics and Space Research at MIT, will present "X-Ray Observations of Black Holes in the Milky Way."

Following the talk we will break for coffee and pastry and then hold our business meeting.

See you at our August monthly meeting.

The August Perseids & the Milky Way

Dave Huestis

When is the last time you remember observing a fairly decent meteor shower? Or even a "meteorocre" (sic) one for that matter. Well, it's been too long for us here in southern New England. Though the Moon has conspired over the years to prevent some of the major meteor showers from being seen to the best advantage, it doesn't take a rocket scientist to figure out that the weather has been the primary deterrent to our being able to wish upon a shooting star.

Unfortunately the upcoming Perseids, which peak on the night of August 11-12, will be compromised once again by a bright waning gibbous Moon (between Full and Last Quarter). The best time to observe this shower is between 11:00 pm or so and dawn's early light, and unfortunately the Moon will be glaring in the sky the entire time. Despite this inconvenience, some members of the Perseid shower are bright and often produce exploding fireballs. And because this meteor shower has developed a second "peak" of activity, I would suggest you try observing on the following night as well.

Though the normal peak rate is 60 meteors per hour, under the unfavorable moonlit conditions you might see 15-20 of the brighter green, red or orange Perseids as they blaze across the sky at about 134,222 miles per hour! Try shielding your eyes from direct moonlight to increase your odds of observing even some of the fainter meteors. And don't forget to observe from a dark sky away from any light pollution to maximize your viewing opportunities.

The Perseids appear to radiate from an area of sky, called the radiant point, in the constellation Perseus. Perseus is well up in the northeast sky after midnight. As he moves up and across the sky, the number of meteors will increase as the night progresses. However the Moon will also be in this region of the sky as well.

Let's hope we at least have clear skies to observe a few shooting stars known as the Perseids.

Later in the month when the Moon is less bright or when it is not visible, look directly overhead from a dark sky and you'll see a wispy stream of stars stretching from high in the north and continuing

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How I Became an Amateur Astronomer

Marian Juskuv

My first heavenly body I had been admiring was star on top of the Christmas tree at my age of 4 or 5. My question how all that beauty came to our living room was answered: "Through window". Yes? Why I did not hear any noise, and how possible that all those fragile ornaments are not broken and the most, that star on a top of the tree! How can I reach that?

Well, Astronomer was born. Investigative one. At age of 11-12 we had geometry classes. It was thrill to calculate height of nearby heat generating plant chimney with paper ruler, angle measurement and walking to the chimney. Yes, it was 110 meters high. Let's go higher. The Sun. Children books taught me that I can directly measure grid location on the planet Earth. On the sand bank of the mountain river in a Carpathian Range in the deep forested Central Europe small young boy put long wooden stick into the ground and observed its shadow. When its shadow was the shortest, the Sun was on Zenith, and angle of the Sun above horizon was taken. It was June 21st, 1965, Summer Solstice. Minus 23 degrees of Earth axis declination, and voila, 49 Degrees North Parallel. How easy! More maths is need for meridian. It took radio Prague noon time announcements, my father wrist watch, stick in the river bank to determine exact time when the Sun was crossing local Meridian. Our noon was 28 minutes before radio Prague noon. Calculations – 21 Degrees East. In 1967 we had partial solar eclipse. School maintenance worker found plenty of broken window glass and everybody darkened his/her glass with candle smoke. How excited we were to see our nearest star to be eaten by dragon. In 1994 in Canton, MA at 10:45 am I took my son and daughter as the only children from locked school were all those poor children were denied that one lifetime opportunity as a children to watch solar eclipse as I did when I was a young boy.

Marina (center) with his wife Maria and Dr. Robert Wilson at Seagrave Observatory during the August 2005 meeting.

Telescopes? They were expensive and few. Books? Plenty. During my later time I went through Old Greek philosophers, medieval English naturalists. My favorites were Kopernik (Copernicus) and Kepler. The first open my interrogative nature and latter gave me understanding that all around us is Math and Math only. Can I calculate movements of planets around me? Yes, Kepler did it first time right way. All mighty ellipses.

Still no telescopes? No, I did my first attempt to build one. Paper tube, small lenses and the Moon. It was year 1981. Galileo. Suddenly I could see fuzzy craters; it was so real on a balcony in a capital city of Slovakia.

Russians have been flying for years in Cosmos, Americans left steps on a Moon, new pictures from Jupiter and Saturn – Voyager 1,2, but who's right? Russians did not find supernatural beings and Americans had joint prayers on an Orbit and the Earth. I took books of Astrophysics and Cosmology. I became even stronger theoretical astronomer.

Where is Capella? And Rigel. Those stars were recommended in marine celestial navigation handbook. It was time when we were sailing around New England. I did not know. I knew about Vega almost everything, but where it is on the sky?

Skyscrapers came handy. One day browsing on a web I found mentioning RI Astronomical Society. Phone call, Dan Lorraine, one visit, pay and nothing. For half year we did not come. We were not astronomers yet. Theoreticians only. Next visit happened during very cold January Saturday clear sky night at Clark dome with just reconditioned red tube Alvan Clark historical telescope where we found our joy. Now we can share time with fellow amateur astronomers and public, to give back that precious knowledge which is built from pieces of scientific information and the result is Wisdom. Congratulations, The Skyscrapers.

The August Perseids & the Milky Way

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towards the southern horizon. This feature is actually the light of billions of stars that comprise our home galaxy, the Milky Way.

Grab your binoculars and telescopes and simply pan down that river of stars. Start in the northern sky with the constellation of Cassiopeia (shaped like the letter W or M, depending upon the time of night), continue through Cygnus (the Swan or Northern Cross), and on to Aquila. It is in the Cygnus region where the Milky Way divides into two bands, separated by obscuring dust called the Great Rift. Though both streams can be traced down into Sagittarius, the eastern band is brightest as it continues into Scutum where, as described by turn of the century astronomer E.E. Barnard, "the stars pile up in great cumulus masses like summer clouds."

From there the eastern band of the Milky Way continues into Sagittarius, a star field easily recognized as a tea pot. You'll encounter many star clouds and nebulae in this region of space. A telescope of any aperture and magnification will not only enhance the view of these very distant objects, but also reveal their intricate structure and beauty.

If you visit Seagrave Observatory on any clear Saturday night this Summer, be sure to ask one of telescope operators to point out a few of these beautiful astronomical gems.

Keep your eyes to the skies.

NASA's Space Place

Celebrating 40 Years of Intent Listening

By Diane K. Fisher

In nature, adjacent animals on the food chain tend to evolve together. As coyotes get sneakier, rabbits get bigger ears. Hearing impaired rabbits die young. Clumsy coyotes starve. So each species pushes the other to "improve."

The technologies pushing robotic space exploration have been like that. Improvements in the supporting communications and data processing infrastructure on the ground (the "ears" of the scientists) have allowed spacecraft to go farther, be smaller and smarter, and send increasingly faint signals back to Earth—and with a fire hose instead of a squirt gun.

Since 1960, improvements in NASA's Deep Space Network (DSN) of radio wave antennas have made possible the improvements and advances in the robotic spacecraft they support.

"In 1964, when Mariner IV flew past Mars and took a few photographs, the limitation of the communication link meant that it took eight hours to return to Earth a single photograph from the Red Planet. By 1989, when Voyager observed Neptune, the DSN capability had increased so much that almost real-time video could be received from the much more distant Planet, Neptune," writes William H. Pickering, Director of JPL from 1954 to 1976, in his Foreword to the book, Uplink-Downlink: A History of the Deep Space Network, 1957-1997, by Douglas J. Mudgway.

Mudgway, an engineer from Australia, was involved in the planning and construction of the first 64-m DSN antenna, which began operating in the Mojave Desert in Goldstone, California, in 1966. This antenna, dubbed "Mars," was so successful from the start, that identical 64-m antennas were constructed at the other two DSN complexes in Canberra, Australia, and Madrid, Spain.

As Mudgway noted in remarks made during the recent observance of the Mars antenna's 40 years of service, "In no time at all, the flight projects were competing with radio astronomy, radio science, radar astronomy, SETI [Search for Extra-terrestrial Intelligence], geodynamics, and VLBI [Very Long Baseline Interferometry] for time on the antenna . . . It was like a scientific gold rush."

For over 40 years, the "Mars" 70-m Deep Space Network antenna at Goldstone, California, has vigilantly listened for tiny signals from spacecraft that are billions of miles away.

In 1986 began an ambitious upgrade program to improve the antenna's performance even further. Engineering studies had shown that if the antenna's diameter were increased to 70 m and other improvements were made, the antenna's performance could be improved by a factor of 1.6. Thus it was that all three 64-m DSN antennas around the world became 70-m antennas. Improvements have continued throughout the years.

"This antenna has played a key role in almost every United States planetary mission since 1966 and quite a few international space missions as well. Together with its twins in Spain and Australia, it has been a key element in asserting America's pre-eminence in the scientific exploration of the solar system," remarks Mudgway.

Find out more about the DSN and the history of the Mars antenna at http://deepspace.jpl.nasa.gov/dsn/features/40years.html. Kids (and grownups) can learn how pictures are sent through space at http://spaceplace.nasa.gov/en/kids/phonedrmarc/2003_august.shtml .

Joel Cohen assists president Dave Huestis at the grill during the July cookout.

Left: Rick Lynch, Ken Dore, and Patricia Cousineau watch and listen as Gerry Dyck (seated) demonstrates his hand-made wind instrument. Below, left: Vivian Hartnett's chair was reserved during the meeting. Below: Ileen Szelka and Dolores Rinaldi contributed much effort in setting up for the cookout. Photos by Jim Crawford.

July Meeting Notes

Mercedes Rivero-Hudec, Secretary

Featured speaker:

Photo by John Kocur

Dr. Scott Wolk was the speaker for the evening; his presentation followed our annual cookout. Dr. Wolk is affiliated with the Harvard-Smithsonian Center for Astrophysics and the Harvard College Observatory. Dr. Wolk's talk was entitled "**Hot Topics in the Solar System – An X-ray View.**" Among the topics Dr. Wolk presented to us, we learnt that X rays that seem to emanate from the "dark side" of the moon are real and their origin is geocoronal.

Business meeting:

• Call to order:

• The business meeting was called to order by David Huestis at 9:24 p.m.

• President Huestis thanked all who contributed to the success of the annual cookout, especially Dolores Rinaldi, Jack and Eileen Szelka, Joe and Jackie Sarandrea.

• The Skyscrapers observed a moment of silence in memory of Vivian Hartnett and Dorothy Newmarker, former members.

Secretary's report:

• Read and accepted as posted.

Treasurer's report:

• Posted in the newsletter.

Trustees' report:

• Rick Arnold (Rick A.) thanked Rick Lynch, Glenn Jackson, and Jerry Jeffrey for doing yard work on the property. Ted Ferneza's son mowed the grass.

• Rick A. announced the following tentative dates for more work on the property:

• July 22: Bob Horton will check the 12- and 16-in telescopes.

• August 12: painting the 12-in telescope's building

• Dave Huestis thanked Rick A. for setting up the "port-a-john."

• There was a discussion about whether or not junior members could have keys to the scopes.

Monthly speaker:

• Glenn Jackson announced that the August meeting's speaker will be Dr. Ron Remillard.

Librarian's report:

• Tracey Haley mentioned that there are still several books on loan since last year.

Historian's report:

• Dave Huestis informed us that he has finished going over the minutes posted in newsletters on file. Dave found out that Fred Whipple gave his first talk to the Skyscrapers on November 7, 1934.

Astro Assembly:

• Ted Ferneza requested volunteers and mentioned that donation letters went out to vendors.

Old business:

• David Kasper and Byron Foote were voted in.

New business:

• One new applicant was introduced to the membership: Verna Gauthier. She will be voted in next month under old business.

• Dave Huestis mentioned that as of two weeks before the cookout (approximately third week in June) there were 65 paid members.

• Constitution and By-laws: a seven-member committee headed by Bob Horton revised the constitution and by-laws. A motion to approve the amendments was made and seconded; amendments will be voted under old business at the next meeting.

Good of the organization:

• Bob Napier mentioned that the buildings were treated for protection against carpenter ants about 3–4 years ago. A comment was made that at the time the "anty" (read ante) room was refurbished.

• Gerry Dyck recently finished reading "Show me God" by Fred Heeren. Gerry contacted the author to let him know of a mistake in one of the book's figures; the figure showed gravitational effects on light bending.

• Dave Huestis announced that the trip to Whitin Observatory (Wellesley College, MA), scheduled for June 24, was cancelled due to weather conditions.

• Dan Lorraine and other Skyscrapers will go to Stellafane (Springfield, VT) July 28-29. Dan donated a copy of "The Arctic Diary of Russell Williams Porter" by Herman R. Friis (The University Press of Virginia, 1976).

• Dave Huestis mentioned that the Skyscrapers' logo was designed by Russell W. Porter.

President's announcements:

• Next meeting: Friday, August 4, 2006.

• Next Executive Board meeting: Wednesday, August 9, 2006.

• Dues reminder.

Adjournment:

The business meeting was adjourned at 10:15 p.m.

Top: Dr. Scott Wolk gave a presentation about X-ray sources within our solar system. Photos by John Kocur. Bottom: Jim Brenek gives some of our younger guests a pretend ride in his 1937 Model A.

Treasurer's Report

Al Schenck, Treasurer

CASH FLOW 5/1/06 - 7/22/06	
INFLOWS	
Astronomy subscriptions	97.95
Collation donation	30.00
Donations	71.57
Picnic Income	441.00
AstroAssembly Income	
Banquet	204.00
Registration	289.00
TOTAL AstroAssembly	493.00
Dues	1,240.00
Contributing	561.00
Family	400.00
Senior	121.00
TOTAL dues	2,322.00
Interest income	14.35
Sky & Telescope subscriptions	329.50
Starparty donation	350.00
TOTAL INFLOWS	4,149.37
OUTFLOWS	
AstroAssembly expenses	
AstroAssembly Expenses	18.61
Printing	18.73
Tent Rental	500.00
Raffle	5.00
TOTAL AstroAssembly expenses	542.34
Astronomy Subscriptions	162.00
Bldg & Grounds	90.00
Portajohn	100.00
Collation	52.01
Corporation Fee	20.00
Discretionary	25.00
Subscriptions	395.40
Utilities	
Electric	61.06
Propane	49.86
TOTAL Utilities	110.92
TOTAL OUTFLOWS	1,497.67
OVERALL TOTAL	2,651.70
Bank Accounts	
Checking	1,131.00
Savings	15,608.09
TOTAL	16,485.46
Cash Accounts	550.00
OVERALL	17,289.09

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