

The Skyscraper

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The monthly publication of



Amateur Astronomical Society
of Rhode Island

47 Peepthead Road
North Scituate, RI 02857

www.theskyscrapers.org

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See back page for directions to
Seagrave Observatory.

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Please submit items for the newsletter
by October 20 to Jim Hendrickson, 1
Sunflower Circle, North Providence, RI
02911 or email to jim@distantgalaxy.com

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The Skyscraper

October 2005

AstroAssembly 2005

FRIDAY, SEPTEMBER 30TH & SATURDAY, OCTOBER 1ST



Please join us on Friday September 30th and Saturday
October 1st for what is sure to be our biggest and best
AstroAssembly ever! Our keynote speaker is astronaut
Story Musgrave, a veteran of six space shuttle missions.
Musgrave spent over 50 hours walking in space on the first
Hubble repair mission. His presentation is informative,
fun, and truly inspirational.

Skyscrapers will have for sale the recently published book "Story: The
Way of Water", DVD "A Space Story", CD "Cosmic Fireflies", and photos
-- Musgrave will be happy to sign any item purchased at the event.

Featured speakers also include by Dr. Jim Head, professor of geological
science at Brown University, Dr. Peter Boyce, astronomer John W. Briggs,
and author Dr. William Sheehan.

OCTOBER 2005

Sept. 30
FRIDAY

6:30PM **AstroAssembly Friday
Night**
Seagrave Observatory

1

SATURDAY

9:00AM **AstroAssembly 2005**
Seagrave Observatory

8

SATURDAY

**Springfield Museums
Trip**

8

SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory

15

SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory

22

SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory

29

SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory

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President's Message

Dave Huestis, President

Many thanks to First Vice President Glenn Jackson for presiding over the September monthly meeting in my absence. I understand he did an admirable job. He'll make a fine Skyscraper President.

A special thank you to Staples' for their generous donation of Staples gift cards valued at \$200 to be used to purchase a new portable projection screen for Seagrave Observatory. The screen is designed to be used with our LED projector, thereby eliminating the interference patterns encountered with the old Daylight screen.

This new addition to our audio-visual equipment will help us to provide quality programs, not only for our members, but also for the numerous scout and civic groups who turn to us for astronomy education. Thanks go to Dan Lorraine for facilitating this donation.

Don't forget that our October monthly meeting is replaced with an event called Astro Assembly. This decades long tradition is one of the finest astronomical conventions in the country. Amateur astronomers from throughout New England and beyond join Skyscrapers for an enjoyable weekend of exciting lectures by amateur and professional astronomers alike.

A series of informal talks presented on Friday evening, September 30, will be followed by a full schedule of lectures during the day on Saturday, October 1.

This year we are proud to present Story Musgrave as our keynote speaker on Saturday evening. Story is a veteran of six space shuttle missions, including the first Hubble repair mission when he spent over 50 hours walking in space to fix the troubled telescope.

Pre-registration is at an all time high, but there still may be time to sign up. Please check with Ted Ferneza at tpfstars@msn.com

Hope to see you there.

Congratulations to long-time Skyscraper member Gerry Dyck on the occasion of his 150,000 variable star observation for the AAVSO (American Association of Variable Star Observers).

That's got to be some feat considering the weather of southern New England. Way to go Gerry!

AstroAssembly

FRIDAY, SEPTEMBER 30TH AND SATURDAY,
OCTOBER 1ST
SCHEDULE OF EVENTS

FRIDAY EVENING PROGRAM SEAGRAVE OBSERVATORY

- 6:00PM Registration & Refreshments
- 7:30 - 10:00PM Glenn Chaple - Author, Astronomy Magazine writer, Variable Star Observer
"Observing Variable Stars"
Anthony Pirera - V.P. and founder of Spectrum Thin Films, Bohemia N.Y.
"Optical Lens Coatings"
John Allseits - Historian Chicago Astronomical Society / Telescope Maker
"Moving the 10" f-15 J.W. Fecker refractor from the University of Alabama to Rural Illinois"
Dr. Peter Boyce - Past Executive Office and Research Associate, Maria Mitchell Assoc.
"Colleagues Around the World"

SATURDAY, OCTOBER 1ST SEAGRAVE OBSERVATORY

- 9:00AM Registration & Refreshments
- 11:00AM William Sheehan - Astronomy Lecturer and Author
"Percival Lowell's 1889 Trip to Japan's Noto Peninsula"
- 12:00PM Trustees Grill
- 1:00PM Dr. James Head - Brown University Planetary Geologist
"The New Mars; Recent Results from an Armada of Spacecraft"
- 2:15PM Astronaut Story Musgrave Book Signing
- 3:45PM John Briggs - Astronomer, Antique Telescope Collector and Restorer
"Early American Telescopes and Their Makers"

SATURDAY EVENING PROGRAM ST. PHILIPS PARISH CENTER

- 5:30PM Wine & Cheese Reception
- 6:30PM Dinner
- 7:30PM Greetings, Raffle Prizes & Introductions
- 8:00PM Story Musgrave

Shooting Stars of October

Dave Huestis, President

We haven't had much luck with viewing the major meteor showers these days. The August Perseids were mostly obscured by high clouds. Some folks had a few holes through which to see a few of these shooting stars, but I only saw one!

The heat and humidity of summer is now past, and hopefully the cooler nights of October will provide us with some beautifully clear skies. Though the observing conditions are less than ideal for the two upcoming meteor showers this month, seeing more than one shooting star will be a bonus, at least for me!

During the first week of the month we have an opportunity to catch a few shooting stars as they blaze across the sky. I say blaze, but the Draconids are fairly slow moving meteors, hitting our atmosphere at only 12.5 miles per second. Usually the peak rate is less than 10 meteors per hour at best (you are just as likely to get as many sporadic or random meteors on any given night).

However, the comet (Giacobini-Zinner) which produced this stream of particles just passed through the inner solar system in July, contributing "fresh" material to the meteor stream. Regardless, most astronomers believe the Earth will miss this new concentration of particles this year. But who knows. It might be a good idea to put this shower on your observing schedule during the morning and evening of October 8. Scientists have been wrong before. Draconids radiate from the northern sky in the constellation Draco.

The waxing crescent Moon (first quarter on the 10th) sets before midnight, so it won't interfere too much with seeing as many meteors as possible.

During mid-month on the 17th, you may hear about a slight partial eclipse of the Moon. Unfortunately this event will not be visible from here because the Moon doesn't enter the Earth's dark umbral shadow until after moonset for us in New England. (Though the Moon will be well into the lighter penumbral shadow while setting, this phase will be undetectable to us.) The further west one travels the more of the eclipse becomes visible. Even then, at maximum only 7% of the lunar disk will fall within the Earth's dark shadow.

Three to four days later, a Waning Gibbous Moon will overshadow all but the brightest of the

members of the Orionid meteor shower. This shower of shooting stars usually produces about 15-20 yellow and green meteors per hour during peak after midnight. Unfortunately the bright moonlight will reduce that number dramatically. These remnants of Halley's Comet intercept the Earth's orbit nearly head-on at 41.6 miles per second, so they are bright and are also noted for producing fireballs that create persistent dust trains high in the atmosphere. You may get lucky and see a few of the brighter meteors as they disintegrate. Best mornings to observe will be October 20-22 after midnight.

As the night progresses, the constellation Orion, and the point in the sky from which the meteors will appear to radiate, will rise higher and higher into the sky, allowing more meteors to be observed. Maximize your chances of seeing them by blocking direct moonlight, or any other light source, from your eyesight.

And lastly, don't forget to turn your clocks back one hour on Sunday, October 30 at 2:00 am. We then return to Eastern Standard Time. Beginning in 2007, as part of the government's Energy Policy Act of 2005, Daylight Saving Time will be extended.

Instead of "springing ahead" one hour on the first Sunday in April, the time change will occur three weeks earlier on the second Sunday in March. Consequently, in the fall when we would "fall behind" one hour on the last Sunday in October, we won't revert back to Eastern Standard Time until the first Sunday in November! Astronomers are going to hate it!

Remember, Seagrave Observatory is open free of charge to the public every clear Saturday night (except October 1). Check our web site - <http://www.theskyscrapers.org> - for further information, and always keep your eyes to the skies.

Some Bright Autumn Double Stars

Glenn Chaple

Autumn is a season of promise for the stargazers. The nights are getting longer, the air clearer, and those pesky summer mosquitoes are a thing of the past. In a few months, Orion and his magnificent wintry retinue will take center stage. While the autumn night sky appears devoid of bright stars, it's still home to a rich array of double stars. Here are ten of the best:

alpha¹, alpha² Capricorni (alpha¹, magnitudes 4.2 and 9.2, separation 45.4 arcseconds; alpha², mags 3.6 and 9.3, sep 154.6") The magnitude 4.2 (alpha¹) and 3.6 (alpha²) stars form a naked eye pair separated by 376". A 3-inch scope will capture their 9th magnitude companions.

gamma Delphini (mags 4.5 and 5.5, sep 9.6") The Dolphin's "snout." One of the finest double stars for small-aperture telescopes. Can you detect the pair's subtle yellow and blue colors? In the same field, 1/4 degree to the southwest, is the delicate little pair Struve 2725 (mags 7.6 and 8.4, sep 5.8").

61 Cygni (mags 5.2 and 6.0, sep 30.5") This binary pair is historically important as the first star whose distance was accurately determined (Bessel - 1838). Both stars appear golden yellow.

Struve 2816 and Struve 2819 Cephei (Struve 2816, mags 5.6, 7.7, and 7.8, sep 11.7" and 19.9"; Struve 2819, mags 7.5 and 8.5, sep 12.4") A triple star and double star in the same low-power field. Grand sight!

epsilon Pegasi (mags 2.4 and 8.4, sep 142.5") An optical, or line-of-sight, double. What makes this pair so interesting is the apparent pendulum-like motion of the fainter star when the telescope is gently rocked in a direction perpendicular to a line connecting the two stars. Fascinating effect!

zeta aquarii (mags 4.3 and 4.5, sep 2.2") A beautiful twin binary that is slowly widening from a minimum separation of 1.7" in 1977. Use at least 100X for a comfortable split.

sigma Cassiopeiae (mags 5.0 and 7.1, sep 3.0") A tough "split" for small scopes, because of the two-magnitude difference in magnitude of the component stars. Just one degree north is the remarkably rich open star cluster NGC 7789.

eta Cassiopeiae (mags 3.4 and 7.5, sep 13.0") What makes this slow-moving binary pair (period = 480 years) noteworthy is its stunning color scheme - yellow for the primary star, red for the companion. Marginally visible in small instruments, the colors

really stand out in a 6-inch scope.

alpha Ursae Minoris (mags 2.0 and 9.0, sep 18.4") Polaris, the North Star. This is a classic light test for the common 60mm refractor. The 9th magnitude companion is hard to spot in the glare of the bright primary star. Easy in a 6-inch scope; shows yellow and blue colors.

gamma Arietis (mags 4.8 and 4.8, sep 7.8") A grand "twin" pair, both white. Their telescopic appearance, like gleaming cat's eyes or the headlights of a distant automobile, are mesmerizing!

Congratulations to Gerry Dyck

150,000 Variable Star Observations

Long time Skyscrapers member Gerry Dyck recently hit a real milestone for variable star observers. While many members of the AAVSO (American Association of Variable Star Observers) are using modern electronic equipment to make their measurements, Gerry Dyck still does it the old fashion way ... by visually observing and estimating the stars magnitude.

"Last week I reached the milestone of 150,000 variable star observations. Helga came out to join me on that night. The critical observation was an outburst of SS Cygni. That was fairly special."
-- Gerry Dyck

Congratulations to Gerry for his outstanding achievement! May you observe another 150,000!



For more information on the AAVSO visit their website at www.aavso.org

Where No Spacecraft Has Gone Before

Dr. Tony Phillips

In 1977, Voyager 1 left our planet. Its mission: to visit Jupiter and Saturn and to study their moons. The flybys were an enormous success. Voyager 1 discovered active volcanoes on Io, found evidence for submerged oceans on Europa, and photographed dark rings around Jupiter itself. Later, the spacecraft buzzed Saturn's moon Titan—alerting astronomers that it was a very strange place indeed! —and flew behind Saturn's rings, seeing what was hidden from Earth.

Beyond Saturn, Neptune and Uranus beckoned, but Voyager 1's planet-tour ended there. Saturn's gravity seized Voyager 1 and slingshot it into deep space. Voyager 1 was heading for the stars—just as NASA had planned.

Now, in 2005, the spacecraft is nine billion miles (96 astronomical units) from the Sun, and it has entered a strange region of space no ship has ever visited before.

"We call this region 'the heliosheath.' It's where the solar wind piles up against the interstellar medium at the outer edge of our solar system," says Ed Stone, project scientist for the Voyager mission at the Jet Propulsion Laboratory.

Out in the Milky Way, where Voyager 1 is trying to go, the "empty space" between stars is not really empty. It's filled with clouds of gas and dust. The wind from the Sun blows a gigantic bubble in this cloudy "interstellar medium." All nine planets from Mercury to Pluto fit comfortably inside. The heliosheath is, essentially, the bubble's skin.

"The heliosheath is different from any other place we've been," says Stone. Near the Sun, the solar wind moves at a million miles per hour. At the heliosheath, the solar wind slows eventually to a dead stop. The slowing wind becomes denser, more turbulent, and its magnetic field—a remnant of the sun's own magnetism—grows stronger.

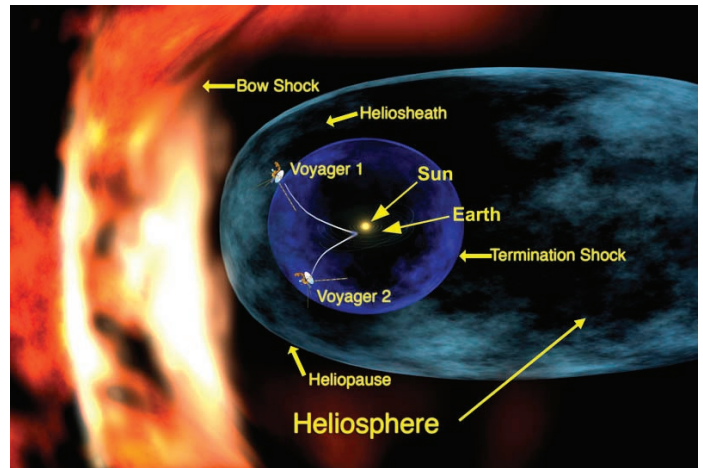
So far from Earth, this turbulent magnetic gas is curiously important to human life. "The heliosheath is a shield against galactic cosmic rays," explains Stone. Subatomic particles blasted in our direction by distant supernovas and black holes are deflected by the heliosheath, protecting the inner solar system from much deadly radiation.

Voyager 1 is exploring this shield for the first time. "We'll remain inside the heliosheath for 8 to

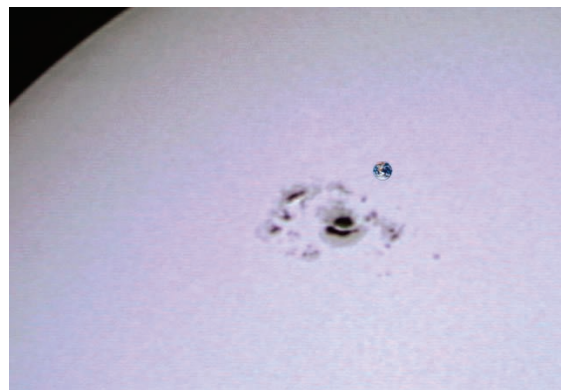
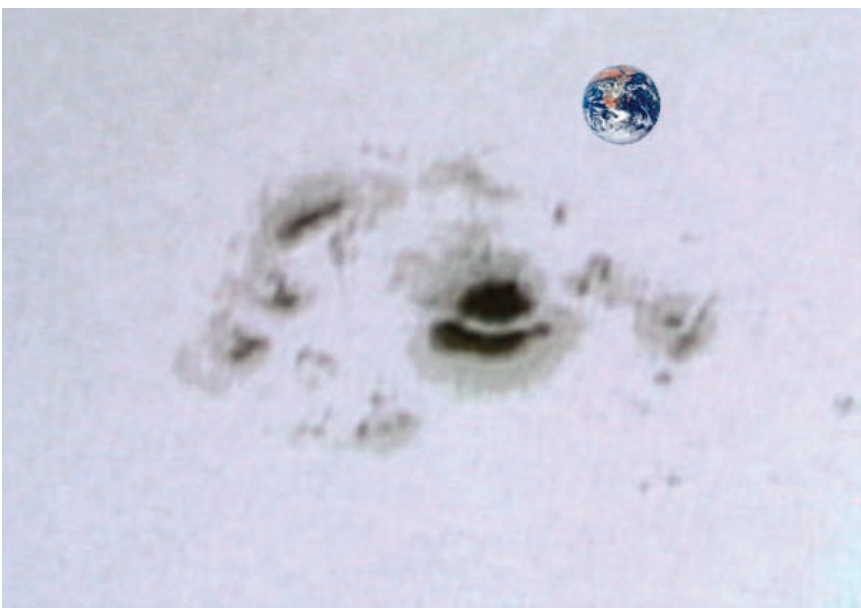
10 years," predicts Stone, "then we'll break through, finally reaching interstellar space."

What's out there? Stay tuned...

For more about the twin Voyager spacecraft, visit voyager.jpl.nasa.gov. Kids can learn about Voyager 1 and 2 and their grand tour of the outer planets at spaceplace.nasa.gov/en/kids/vgr_fact3.shtml.



Voyager 1, after 28 years of travel, has reached the heliosheath of our solar system



Top: Steve Hubbard photographed the Moon, Venus (left) and Jupiter grouping on September 6. Bottom left: Krys Rucz photographed sunspot group 10808 on September 12. Earth is shown as a size comparison. Right: wider view of sunspot group 10808.

Secretary's Report

Dave Huestis, Acting Secretary

E-Board Meeting

August 25, 2005

In Attendance: Dave Huestis, Ted Ferneza, Dan Lorraine, Steve Siok, Dolores Rinaldi, Bill Kirby, Jim Hendrickson, Marian Juskuv, Mercedes Rivero-Hudec

Meeting was called to order by President Dave Huestis at 7:00 pm. The main business conducted at the meeting centered on the preparations underway for Astro Assembly, our annual convention. This was a comprehensive review to insure the success of this event, including: the logistics for our key-note speaker Story Musgrave, as well as other invited guest speakers; the Friday evening and Saturday schedule of speakers/talks; the A/V equipment; the Trustees Grille; the Wine and Cheese reception before the banquet; the banquet caterers; raffle prizes; volunteers needed to help out before, during and after the event - Ted will be asking for folks to help at the September meeting. This is just the tip of the old "iceberg"! One hour and 20 minutes were spent on making sure everything for Astro Assembly was in order.

The remainder of the meeting focussed on a few topics.

Ted Ferneza and Bobby Napier had reviewed our financial records with treasurer Bill Kirby since our last eboard meeting and found them to be accurate. This, despite the fact that a financial audit had not been performed in eight years or so! (It is required annually!)

Ted Ferneza reported that IMAX is promoting a new show called: Magnificent Desolation: Walking on the Moon 3D. To help spread the word around, they are providing 75 free tickets to Skyscrapers for a special showing of the film on Wednesday, September 21 at 8:40 pm. Ted will be announcing this at the September meeting.

A brief discussion ensued regarding how much money we are expending on monthly meeting refreshments. We realize folks look forward to socializing and having some goodies during our break. We only ask that they make a donation (a box will be provided) to help defray the cost. We also discussed how some goods purchased for the refreshment area have been pilfered in recent months.

The eboard will be proposing a change to our bylaws during the November meeting concerning the pro-rated dues structure. It is confusing. A proposed amendment will be introduced under new business at the November monthly meeting by Ted Ferneza. It will come up for

a vote during old business at the December monthly meeting. The eboard will recommend approval of the proposed amendment without change.

Trustee Marian Juskuv reported that our public nights have been doing well. Well staffed. Some trees on our property may be cut to provide a better view of the western sky. Ted Ferneza reported that our western neighbor did cut down some trees recently, possibly giving us a slightly better look at the sky. A no-trepassing sign will be placed on the chain at the entrance to our property.

Jim Hendrickson and Dave Huestis reminded folks about meeting deadlines for submissions to the Skyscraper. Jim always publishes the deadline date for the next issue in the current issue of the Skyscraper. It is imperative that the secretary and treasurer reports appear each month.

We have a good schedule of speakers through the end of the year. Dave Huestis reminded everyone that the December meeting will be on Saturday, December 3rd, not Friday the 2nd. Also, because our "holiday" meeting is usually very well attended, we will be having it at the North Scituate Community Center. We will be diligently working on obtaining speakers for our winter meetings (Jan - Mar), also to be tentative held at the Community Center.

President Dave Huestis is working on a letter to send to the Champlin Foundations asking for their recommendations in preparing for a grant that will require an outlay of significant monies before the grant proposal can even be drafted.

Dave also announced a field trip to the Springfield Museums in Springfield Mass, on Saturday, October 8. Details will appear in the September Skyscraper.

Meeting adjourned at 9:30 pm.

Respectively submitted by President Dave Huestis in the absence of the secretary.

David A. Huestis

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