

The Skyscraper

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the monthly publication of



The 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.

Please submit items for the newsletter by June 15 to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to jim@distantgalaxy.com

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The Skyscraper

June 2003

June Meeting: The Transneptunian Belt

Dr. Brian G. Marsden, Harvard-Smithsonian Center for Astrophysics

Friday, June 6, 7:30pm at Seagrave Observatory

Observations since late 1992 have so far revealed some 700 objects orbiting the sun generally within up to 25 AU beyond the orbit of Neptune and having estimated diameters from perhaps 50 to more than 1200 km. The majority of the objects seem to have orbits with mean heliocentric distances of 42-47 AU, eccentricities up to perhaps 0.15 and low to modest inclinations to the ecliptic. Further objects at mean distances 39-40 AU in some instances pass inside the orbit of Neptune at perihelion but are protected from making close approaches to that planet because their revolution periods are precisely 3/2 that of Neptune, and the range of relative positions is therefore restricted. *Continued on page 2...*

It is renewal time

Just a reminder, if you haven't paid your dues please do so at your earliest convenience. We've got a lot planned for this year and wouldn't want you to miss out on any of the fun!

There is a membership renewal form in the May newsletter and on the website at www.theskyscrapers.org

Skyscrapers Calendar

Public observing is held every Saturday at Seagrave Observatory.

June 6 Friday	7:30pm June meeting at Seagrave Observatory
June 7 Saturday	8:00pm Public Observing Night at Seagrave Observatory
June 14 Saturday	8:00pm Public Observing Night at Seagrave Observatory
June 21 Saturday	8:00pm Public Observing Night at Seagrave Observatory
June 28 Saturday	8:00pm Public Observing Night at Seagrave Observatory

June Meeting

Continued from page 1

These characteristics are also exhibited by Pluto, which is about twice the size of its largest companions, several of which, again like Pluto, have been found to possess satellites. Still further objects are protected from encountering Jupiter by virtue of revolution periods having ratios to that of Neptune of 1/1, 4/3, 5/3, 7/4 and 2/1. There are also the so-called "scattered-disk objects" with much more eccentric orbits ranging from just beyond Neptune at perihelion to distances of up to several hundred astronomical units at aphelion. Many of these objects have much in common with the "centaurs", such as Chiron, a 1977 discovery with an orbit ranging from Saturn to Uranus, but that in some instances are beyond the orbit of Neptune at aphelion. It is believed that all these objects, perhaps including Pluto, are proto-comets in various stages of their dynamical evolution, and where much of the population has already been transferred, either into short-period orbits that just reach Jupiter at aphelion, or into the much larger orbits of the Oort Cloud, the outer extremity of which is shaped by the gravitational influences of the center of the Galaxy, on the one hand, and by passing stars and giant molecular clouds, on the other. Several questions remain concerning the structure of the Transneptunian belt, in particular with regard to regular structure beyond the 2/1 resonant orbits at 48 AU, although there have recently been some intriguing new developments on this subject.

Dr. Marsden has been the director of the International Astronomical Union's Central Bureau for Astronomical Telegrams since 1968, and in this capacity is responsible for the timely dissemination of information about transient astronomical objects and events; since 1978 he has also directed the IAU's Minor Planet Center, which issues monthly batches of "Minor Planet Circulars" with positional observations, orbital elements and related information about comets and asteroids. Dr. Marsden's specializes in celestial mechanics and astrometry, with particular application to the study of comets and asteroids. He was born in Cambridge, England, and his undergraduate education was at Oxford and he received his PhD. from Yale University.

President's Message

Dan Lorraine, President

My Fellow Skyscrapers,

I would like to thank past President Steve Hubbard for his hard work, dedication, and leadership in moving the organization in a positive direction over the past year. There were many accomplishments in 2002-2003, and we hope to bring you an even more exciting events and member programs in the upcoming year. Last year we were honored to have many top caliber speakers including: Jim Head, Mars and Venus expert from the Lab for Planetary Studies; Andy Chaikin author of the HBO mini-series From Earth to the Moon; Evan Haddingham the producer of the award winning show NOVA; and Larry Marschal, author of a popular book on Supernovae to name a few! We had our first annual members' cookout in July which was a big hit and plans are already underway for this year's event. As always we had another successful Astro-Assembly, continuing in a long standing tradition of bringing amateur astronomers together from throughout the region – and this year it will be better than ever!

Seagrave Observatory will once again be open on every clear Saturday night rather than just twice a month. In addition to creating more access to the scopes for the membership, we are planning on special events and workshops – let me share a few of those with you: how to select a telescope that fits your needs and observational interests; how to use your new telescope; introduction to the constellations; observing the Planets; CCD imaging; meteor observing; variable star observing; astrophotography ... and much more! This summer Mars will be closer to Earth than it has been in the past several thousand years! We are currently planning special events for members and the public as well. We will continue with our fine tradition of monthly programming beginning with our June meeting featuring Dr. Brian Marsden from the Harvard-Smithsonian Astrophysical Observatory and Steve Hubbard already has an impressive line-up of speakers for the remainder of the year.

We've got a lot planned and we'd like you to be part of it! If you haven't renewed your membership, please do so as soon as possible. And if you're willing and able to volunteer some of your time to help with the various events or the maintenance of the property, please see one of the trustees. There's a lot of work that goes into successfully running an organization like Skyscrapers and anything that you can contribute to our success would be greatly appreciated!

Space Places in Rhode Island

Part III: Ladd Observatory

David A Huestis, Librarian

Now that the weather has improved (at least on the night I began this column), we can finally venture outdoors and observe the wonders of the heavens. Jupiter is still visible, while the Moon in any phase can be seen more than 90% of the time in a given month. And, if you observe right now during the early morning hours, you can catch a preview of Mars before he makes his closest approach to the Earth in August.

If you wish to get a good look at some of these celestial bodies, then I suggest you visit another one of my favorite space places in Rhode Island, Ladd Observatory in Providence.

The observatory is located on "high ground" at the corner of Hope Street and Doyle Avenue on the East Side of Providence. Despite its being surrounded by a neighborhood of multi-story houses, one still commands a great view of the surrounding cityscape from atop the second story deck adjacent to the observatory dome.

Unfortunately we are more interested in looking upward from this vantage point, and the extremely light-polluted sky seriously diminishes what can be seen with the naked-eye. Fortunately the observatory houses a 112 year-old, 12-inch Brashear refractor that is absolutely perfect to use for observing the planets, the Moon and double stars, as well as a few of the bright "deep sky" objects like the Orion Nebula and the great globular cluster M13 in Hercules, just to name a few. Here's a little background on this wonderful facility open to the public every Tuesday night.

If you want something really bad, you usually have to pour your heart and soul into the process to obtain your desired goal. That philosophy is not lost on construction of Ladd Observatory. The story goes that Professor Winslow Upton, Professor of Astronomy at Brown, threatened to resign if an observatory was not forthcoming. Upton's threat was taken seriously, for in 1891 Ladd Observatory was built, a gift to Brown from Governor H.W. Ladd. The building was typical of the style observatory being erected across the country, a two-story brick structure topped by a copper dome. Well, Upton's persistence paid off. He not only got his observatory, but also was appointed Ladd's first director.

When you visit Ladd Observatory today, its like taking a step back in time. Of course things have changed, but the character of the building harkens us back to an earlier time.

As you view the observatory from the corner of Hope and Doyle it appears much the way it did over 100 years ago. The surrounding property has changed dramatically (more about that latter), but the western end of the structure has not significantly changed.

When you first enter the observatory there will be a guest sign-in book immediately to your left. If you are in a hurry to observe, take the stairway a few feet away on your left up to the dome, or you may proceed to the far end of the building to take the "new" elevator. If you have more time, check out the back two rooms. They contain a variety of historical information that may interest the first-time visitor.

There is a small, cozy meeting room where one may attend a lecture on a variety of astronomical topics. Another side room contains wall panels with a gallery of antique astronomical images backlit to reveal their glory. It's a unique and historical room that has hardly changed since I first visited the observatory in the mid 1970's. This room also features a small homemade star-projector that can project the constellations upon a vinyl dome hung from the ceiling. Up to 12 people can sit underneath this planetarium to learn star pattern identification.

At the far end of the observatory one can find the old transit room. This is where an observer would use a transit telescope to time stars crossing the local meridian, an imaginary north-south line passing through the observatory. Local time could then be precisely established, which was not only needed for astronomical calculations, but also for deriving civil time. Ladd Observatory was responsible as a time keeping service for the Providence area. And speaking of time, please note the various clocks throughout the observatory. They were an important piece of this time keeping tradition.

But the most impressive room in this building can be found atop those stairs just inside the main entrance. When you enter into the huge dome you'll be amazed at the sight that will greet you. Center stage is a 15-foot long Brashear refracting telescope, housing a 12-inch in diameter lens, sitting atop a massive mount. Though seemingly cumbersome, this wonderful instrument is so precisely balanced it can be easily maneuvered to any position in the sky with just a slight nudge.

Likewise, the huge dome, with a slit that can be opened to provide a pathway for starlight (or planet light, etc) to reach the telescope, can also be easily rotated by a geared pulley system. It's all accomplished manually. If it weren't for the light pollution that offends your eyes through the slit or the traffic noise that offends your ears, one can imagine stepping back in time to 1891 when the observatory was built.

I've experienced some great views through this wonderful instrument over the years. My old friend and former Skyscrapers member John Briggs, a noted telescope historian, called the Ladd Brashear telescope "majestic." I couldn't agree more. You can take our word for it, or you can come to the same conclusion yourself when you visit. Mars is going to be quite revealing through this instrument in late August when it makes its closest approach to the Earth in centuries.

During renovations a few years ago (1999), some important improvements were made to the observatory. None of these affected the telescope or the operation thereof. The major renovation included an elevator to allow handicap accessibility to the dome. Also, new bathroom facilities, handicap accessible as well, were provided. Most importantly, the observatory meets all fire code statutes, including a second exit from the roof.

At the same time, the property was spruced up. More than spruced up. It now looks like a little part of Blackstone Boulevard a couple of miles away somehow got lost and ended up on the corner of Hope Street and Doyle Avenues. An old three-story house on the western side of the observatory was demolished and extensive landscaping was done. There is a nice walkway with a park bench or two. There are even three on- property parking spaces. Most visitors park on Doyle Avenue, the road to the right of the observatory as you are facing it from Hope Street.

Ladd Observatory is open to the public every Tuesday night, weather permitting of course. For updates on the public observing schedule at Ladd please check out the website at <http://www.physics.brown.edu/pages/astro/ladd/> or call 401-521-5680 for information.

So there you have it. Another space place in Rhode Island. You may have noticed that all three space places I have already written about were all in Providence. That planning was deliberate. Having lived in Rhode Island most of my life, I know how provincial the natives can be. Most folks don't like to travel far. Dunkin' Donuts and Home Depot, just to name a few, have cashed in on this mentality. And to think, we are the smallest state in the union. Woonsocket to Westerly - you've got to pack a lunch and an overnight bag!!!

Well, in my next installment of "Space Places in Rhode Island," I'm going to make you do some driving to one of the last few dark sky observatories in our state. You may

require a map, you might seek directions on-line, but I'll leave the lunch and overnight bag packing decisions to you.

Until next time, keep your eyes to the skies. And remember, Seagrave Observatory is now open every Saturday night for your viewing pleasure, weather permitting of course. Visit us at <http://www.theskyscrapers.org> for information.

Secretary's Report

Pat Landers, Secretary

Monthly Meeting

April 12, 2003

Started at 7:45pm

Treasurer's Report:

Account Summary	
Checking	3035.58
Savings	8011.52
Total Assets	\$11047.10

Inflows

Deposits	
Dues	1248.79
Publications	(239.60)
Total Deposits	1009.19
Total Inflows	\$1009.19

Outflows

Electric	30.71
Library	23.98
Misc (CCD Camera)	2422.80
Postage	241.97
Misc (Motel for guest speakers)	72.80
Supplies	36.00
WWW Domain Reg.	75.00
Total Outflows	\$2830.46

Trustees Report: There is a work session planned for 4/26/03 to take down the Clarke for repainting. A keyholder meeting will also be scheduled for that day to set the volunteer schedule for the next few months. There is also an E Board meeting for the same day.

Librarian's Report:

Dave Huestis announced that 2 new books had been donated. Dolores Rinaldi donated a 2003 calendar.

New business: None

Old Business: None

Good of the Organization: Bill Luzader has invited us all to Plymouth to the planetarium where he works. This is set for Saturday, 5/31/03. He will giving further information to

Jim Hendrickson to post on the web site. There is a transit of Mercury across the sun on 5/7/03 and a total lunar eclipse visible from this area on May 15th/16th.

Meeting adjourned at 8:15.

Observatory Committee Meeting April 26, 2003

An Observatory Committee Meeting was held on April 26th. Present were Bob Horton, Jim Hendrickson, Tom Rinaldi, Dan Lorraine, Bill Guca, and Pat Landers.

Weather permitting, it was decided to disassemble and repaint the Clark on May 3, 2003. Two doors on the Clarke building will hopefully be replaced, one for the dome and one for the catwalk. Members will present for the lunar eclipse of May 15-16th. Dan Lorraine would like to put together a new brochure to present to prospective applicants to Skyscrapers, as well as membership cards.

The grounds will be open on all Saturday nights, even cloudy ones. The grounds will not be open on rainy Saturday nights. Potential programs for cloudy nights were discussed, including showing astro slides, science-related movies, "know your sky" and "know your telescope" programs, NASA missions, and finding Messier objects with a small telescope.

Executive Board Meeting April 26, 2003

An Executive Board meeting was held on April 26th. Present were Bob Horton, Jim Hendrickson, Tom Rinaldi, Dan Lorraine, Bill Guca, Pat Landers, Dave Huestis, Dolores Rinaldi, and Bob Napier.

Dan Lorraine announced upcoming speakers for the monthly meetings, including the Todds for May, and Brian Marsden for June.

Various pricing and term options were discussed for purchasing a domain name--1 year can be purchased for \$35, 2 years for \$60, and 3 years for \$75.

Dave Hurdis would like to step down as chairman of the Membership Committee.

The website is coming together, with more images and features being added. Discussion forums, including Q & A, could be up and running on the site soon, but the need for individual passwords and a moderator to guard against improper topics was discussed.

With respect to the Meade 12", Tom Rinaldi will investigate refurbishing options; Meade would charge \$395 plus \$75 for a new hand controller.

The Observatory Committee described its planned public night programs, as well as potential workshops for members.

Bob Napier claims an underground pipe on the grounds has filled with water, which will jeopardize live demonstrations between the Meade 16" and the meeting hall. It was decided to investigate this issue further in June.

Monthly Meeting May 2, 2003

Meeting commenced at 7:42 p.m.

Secretary's Report--None

Treasurer's Report--None
However, Ocean State Power donated \$200 because of the program put on at the Callahan School. The Metcalf School donated \$92.

Dues are due.

Domain site fees are due by June.

Trustees Report--Outgoing trustee Bob Horton thanked his fellow members of the Observatory Committee for their help and assistance. The next work session is planned for May 17th.

Membership Committee--No report; Pat Landers will assume chairmanship of the Membership; a motion was made to vote Daniel and Christine Warren in as members next month.

Librarian's Report--None

Old Business--None

New Business--Tom Rinaldi made a motion that we spend \$395 to refurbish the Meade, but this price doesn't include shipping, and \$75 for a new controller. The price was not to exceed \$600.

Good of the Organization--1) there is a transit of Mercury on May 7th; 2) there is a lunar eclipse on May 15-16th; 3) 50 or so cub scouts are scheduled to visit on May 9th; 4) Dan Lorraine held a raffle to buy money for a grill, offering items which traveled on Apollo 7 and a Fisher space pen which were generously donated by Florian Noler, who has a site for such items at www.spaceflori.com; 5) Dave Hurdis attended an AAVSO meeting in Tucson last month, where he inspected an 8 and 1/2 foot mirror at the Arizona Mirror Lab; 6) Bill Guca reminisced about the meteor of 4/25/66; 7) the website is coming together, and all were invited to check it out; 8) Dr. Phil Manheim is confirmed as July's speaker.

Meeting adjourned at 8:10 p.m.

Directions to Seagrave 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
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