

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.

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The Skyscraper

April 2003

April Meeting: The Transneptunian Belt

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

Friday, April 4, 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...*

Skyscrapers Calendar

Public observing is held on the 2nd and 4th Saturday of the month at Seagrave Observatory, weather permitting. Public Nights will resume a schedule of every Saturday night, clear or cloudy, beginning in April.

April 4 **7:30pm** **April meeting** at North Scituate Community Center

April 12 **7:30pm** **Public Observing Night** at Seagrave Observatory

April 26 **7:30pm** **Public Observing Night** at Seagrave Observatory

Upcoming Star Parties

Skyscrapers will be hosting a series of star parties this spring. Members are requested to volunteer to bring a telescope and share the sky for an hour or so with some wonderful kids. Some of these events have been occurring for a good many years now, and in a single evening we have shown the heavens to upwards of 300 hundred or so children and parents.

March 27, 2003 (Thursday) 7:00 pm - Callahan School in Harrisville

April 3, 2003 (Thursday) 7:00 pm - Steere Farm School - Burrillville

April 11, 2003 (Friday) 8:00 pm - 10:00 pm - Audubon Society - Greenville

May 9, 2003 (Friday) 8:00 pm - Seagrave Observatory

April 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 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.

Secretary's Notes

Pat Landers, Secretary

Monthly Meeting

March 7, 2003

The Meeting commenced at 7:45 p.m.

Secretary's Report--None, since there was no February meeting due to weather. There was a motion which was approved changing the Secretary's Report from the January 10, 2003 meeting. The Report was changed to indicate that a motion was made at that meeting to purchase an SBIG ST9EN CCD camera from Bob Napier for \$2,350, to be discussed and voted upon at the next meeting.

Treasurer's Report-- As of March 4, there was a total of \$10,586.11 in savings and \$2,244.73 in checking, for a total of \$12,830.84.

Observatory Committee--The grounds will remain closed to the public until April due to snow/mud. The Clark telescope tube will be repainted in April.

Membership Committee--The application of Marion Juskov of Cumberland has submitted for membership.

Nominating Committee--The following slate of officers for 2003-2004 was proposed:

President: Dan Lorraine; First Vice President--Steve Hubbard; Second Vice President--Bob Horton; Secretary--Bob Napier; Treasurer--Dolores Rinaldi; Trustee (1 year term)--Richard Arnold; Trustee (3 year term)--Jack Szelka; Member at Large--Ken Dorr; Member at Large--Joel Cohen;

The Ballot will be included with next month's newsletter.

Old Business:

- 1) Peter Elkins of Warwick and Charles Stanfa were voted full members;
- 2) The issue as to whether or not to purchase the CCD camera from Bob Napier was extensively discussed. Those members who spoke in favor of the motion cited the following: 1) the asking price was reasonable given the cost of a similar new camera; 2) the interest expressed by members of RINET in remote CCD imaging; 3) the camera's potential scientific uses; and 4) the ability to offer members CCD workshops. Those who opposed the motion expressed concerns regarding the following: 1) whether the club should invest such a substantial portion

of its savings in one item; 2) whether CCD was so esoteric an interest that the camera would have limited utility to most club members; 3) that the club presently lacks any portable computers for members to utilize the camera, and 4) whether the camera would depreciate in value quickly as the field of CCD matures. The motion passed by a majority vote.

Good of the Organization:

1) Among those making recent donations to the club include The Cub Scouts of Pascoag, the Narragansett Boy Scouts, and Cub World of Burrillville;
2) there are many upcoming star parties in late March and early April--these were listed in the March Skyscraper and volunteers are needed to man some scopes;\

3) it was suggested that we investigate whether to move the club's checking account to Fleet, which reportedly has little or no fees;

4) Fred Ewalt has reportedly entered a second phase of his treatment, is making good progress, and hoped to be observing by the end of March;

5) Bill Luzader postponed his invitation to the club to visit the Plymouth Observatory until June or July; 6) The Cormack Planetarium at Roger Williams Park has an upcoming program entitled "Storms from the Sun." Finally, it was reported that Gerald LaFontaine, a longtime member, has passed away.

The meeting adjourned at 8:37 p.m.

Pleasure at the Telescope: Observing Jupiter

David A Huestis, Librarian

Hopefully by the time you read this column Mother Nature will have relinquished her grip on winter and provided us with some weather we can cope with. I for one did little astronomy this winter. Not only was it brutally cold, but also the feet of snow in my backyard made it difficult to set up any telescope. So if you haven't got a glimpse of Saturn (the topic of last month's column) through a telescope this season yet, you're not alone.

I can only hope that once astronomical spring arrived on March 20, the weather rapidly improved, providing ample opportunity to observe Saturn and his magnificent rings for at least another month or so before this beautiful planet disappears into the solar glare.

As I mentioned last month, we've been fortunate during the last few years to have Jupiter and Saturn prominently positioned in the early spring evening sky. This scenario will not always be the case. Even now the two planets are moving further apart in the sky. Eventually you won't be able to observe both on the same evening. Though that will be unfortunate for our annual spring star parties at local schools, there's always something interesting to observe in the heavens.

Where can you currently find Jupiter in the vault of the heavens? Jupiter is the brightest object high in the southern sky, residing within the indistinct constellation of Cancer the Crab. Although Cancer's star pattern is not very bright, there is one beautiful

star cluster called the Beehive just less than two full moon diameters from Jupiter.

I realize that Saturn and Jupiter require a telescope to really appreciate their beauty. If you don't have access to one, try training a pair of 10 X 50 binoculars on these giant worlds. With Saturn's rings wide open, the binoculars should show you an oblong image, hinting at the ring system. Train them on Jupiter and you can spot some of Jupiter's moons.

You can look at the wonderful pictures of the planets in so-called coffee-table astronomy books, or I can describe in great detail my recollections of planetary views through a variety of telescopes both large and small. However, nothing can compare to your first glimpse of Jupiter or Saturn through even a small or modest telescope.

My favorite turn-of-the-century author, Garrett P. Serviss called Jupiter "one of the greatest pleasures that the telescope affords." One of the first things that will catch your eye will be the Galilean moons. Galileo Galilei first observed them and Jupiter in 1610, so now the four moons collectively honor his discovery. They are: Io, Europa, Ganymede and Callisto. When several of the Galilean moons are visible at the same time, they sometimes appear in a straight line, parading around Jupiter in the plane of its equator. This astrophysical arrangement presents many interesting events for us earth-bound astronomers to observe.

When a moon passes in front of Jupiter, casting its shadow onto the Jovian cloud tops, it is called a transit. Besides seeing the satellite's shadow, you may also see the bright disk of the satellite traversing Jupiter's clouds at the same time, though this event is more difficult to observe. A moon may also pass behind the planet. That's called an occultation. Jupiter's shadow can even eclipse a satellite as well; gradually the moon will either blink out or reappear. Also, it's fun to watch all four moons line up on one side of the planet. As you can see there's much to observe in Jupiter's vicinity.

In addition, you'll easily notice the more prominent dark bands or belts in Jupiter's cloud tops. The once dominant feature of Jupiter (from at least Galileo's time thru the mid 1970's) is the famous Great Red Spot. It is nothing more than a giant storm in Jupiter's clouds that has been active for more than 400 years. Unfortunately it's not as red or great as it once was, so it might be difficult to detect in smaller instruments. Today it could be called the Not So Great Beige Spot! Monthly magazines devoted to the astronomy hobby, like Sky and Telescope or Astronomy, will have specific times of events occurring in the Jovian environment.

Keep in mind that Jupiter rotates once in 10 hours, making it possible to see the entire planet in one or two nights of observing. Also, even under low magnification the view will be rewarding. For example, 36 power will make Jupiter appear as large as the full moon does to the naked eye. So get out there with your telescopes and view some of our solar system's most beautiful planets. Then continue exploring the rest of the universe. You've got a lifetime of discoveries awaiting you every clear night.

If you don't have access to a telescope or you'd like to explore the universe with larger instruments, then by all means visit Seagrave Memorial Observatory on Peepoad Road in North Scituate. Please note our new public open night schedule. Beginning in April, the observatory will once again be open every Saturday night, weather permitting of course. Our members will be happy to share their love of the sky with you. If substantial snow still covers our parking lot, the observatory will remain closed. More information, including directions, membership, and weather related closures can be found at our website: www.theskyscrapers.org

As always, keep your eyes to the skies.

Skyscrapers, Inc. 2003-2004 Election Ballot

Please fill out this ballot and bring it to the Skyscrapers Meeting on Friday, April 4, or email your ballot to Kathy Siok at ride7158@ride.ri.net.

Office	Nominee <i>(circle or write in)</i>	
President	Daniel Lorraine	_____
1st Vice President	Stephen Hubbard	_____
2nd Vice President	Robert Horton	_____
Secretary	Bobby Napier	_____
Treasurer	Dolores Rinaldi	_____
Trustee (1 year term)	Richard Arnold	_____
Trustee (3 year term)	Jack Szelka	_____
Members at Large	Ken Dorr	_____
	Joel Cohen	_____

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
NORTH SCITUATE, RI 02857**