The speaker for our March meeting will be Ken Launie, member of the Amateur Telescope Makers of Boston and long time friend of Skyscrapers. Ken is a well known collector and expert on antique telescopes and also a collector of rare astronomy books and ephemera. Ken will be presenting a talk about collecting astronomical ephemera on a budget, such as how to find astronomically themed post cards for just a few dollars. Members are invited to bring along any collections of astronomically themed items they may have. We’ll have some tables set up to display these collections.

**Directions to the North Scituate Community Center:** from Seagrave Observatory, the North Scituate Community Center is the first building on the right side going south on Rt. 116, after the intersection of Rt. 6 Bypass (also Rt. 101) and Rt. 116, in N. Scituate. Famous Pizza is on the corner of that intersection. Parking is across the street from the Community Center.
President’s Message
Glenn Jackson

Weather forecast: cloudy skies, freezing temperatures, snow, sleet, rain and slush. Sure makes it difficult to spend any time under the stars. In the past month I have only been able to get the telescopes out three times. However, what a great time to spend planning and reading up on the latest happenings in the field of astronomy. I just completed my second reading of Starlight Nights by Leslie C. Peltier, I find that the book is very inspirational. If you haven’t read this book it is a must for all lovers of the night sky.

Looking ahead to March. We have four star parties all to be held at Seagrave Memorial Observatory. They are March 5th, 12th, 13th, and 14th. ARTICLE II: of our Constitution reads: The object of this Society shall be to educate the general public and membership on matters pertaining to astronomy. This is what Skyscrapers is about. Star parties are our main education Outreach to the public. Just in these four star parties we will be educating an introducing the night sky to a minimum of 100 young children. If the two star parties scheduled for February are not weathered out we can add a minimum of another 250 children to this list. I believe that every member should be contributing to the success of these star parties at some level. One evening out under the stars with a group of children is not asking a lot of our membership. Won’t you volunteer some of your time to help us full our mission of educating the public. I look forward to hearing from you.

The March meeting is the staging grounds for our Annual Skyscrapers meeting. At the March meeting our operating budget will be provided to layout our expenditures for the coming year. A slate of new officers for the coming year will also be presented. At this meeting Any member may nominate any other member for any position in the Skyscraper organization. A vote on the budget and election of officers will occur at the April meeting with the new budget and new officers assuming their position at the May meeting. If you have any concerns about the budget or election of officers the March meeting is your opportunity to influence the direction of Skyscrapers for the coming year. We would like to hear your opinions. Hope to see you there.

Star Parties At Seagrave Memorial Observatory

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday March 5th</td>
<td>7:00 pm</td>
<td>Seagrave</td>
<td>25 Girl Scouts</td>
</tr>
<tr>
<td>Wednesday March 12th</td>
<td>7:00 pm</td>
<td>Seagrave</td>
<td>25 Boy Scouts</td>
</tr>
<tr>
<td>Thursday March 13th</td>
<td>7:00 pm</td>
<td>Seagrave</td>
<td>25 Christian Home Educators</td>
</tr>
<tr>
<td>Friday March 14th</td>
<td>7:00 pm</td>
<td>Seagrave</td>
<td>25 Boy Scouts</td>
</tr>
</tbody>
</table>

We are looking for all of the telescopes at Seagrave Memorial Observatory to be in operation. Volunteers with lasers and binoculars are welcome to add commentary. Any member wishing to bring their own telescope to these star parties are welcome. If you can assist please contact Bob Forgiel at bforgeil@cox.net

Other Happenings

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturday March 8th</td>
<td>7:00 pm</td>
<td>Messier Marathon Challenge</td>
<td>Seagrave</td>
</tr>
<tr>
<td>Saturday March 15th</td>
<td>11:00 am</td>
<td>Judges needed</td>
<td>CCRI</td>
</tr>
<tr>
<td></td>
<td>3:00 pm</td>
<td>for State Science Fair</td>
<td></td>
</tr>
<tr>
<td>Thursday March 27th</td>
<td>7:00 pm</td>
<td>E-Board meeting</td>
<td>Community Center</td>
</tr>
<tr>
<td>Saturday March 29th</td>
<td>7:00 pm</td>
<td>Messier Marathon</td>
<td>Seagrave</td>
</tr>
</tbody>
</table>

Your participation is welcome at any and all of these events. Contact Glenn for more information at  Glenn.Jackson@cox.net

White Mountain Observing Trip

June 28th – July 5th  Still accepting reservations under the best skies in the USA.
Magnificent Saturn
Dave Huestis

What’s the first thing you think about when I mention the planet Saturn? If you’re like most people, your brain immediately envisions a planetary body encircled by a system of rings. And why not? Saturn would be a fairly boring planet visually if it weren’t for those beautifully exquisite rings.

While one can find many images of Saturn and his moons on the internet, there’s nothing like experiencing this magnificent planet firsthand by observing through your own backyard telescope or those at Seagrave Observatory in North Scituate or Ladd Observatory in Providence.

If you want to observe Saturn on your own, you first need to know where to locate the ringed world in the sky. From now until Saturn is lost in the Sun’s glare sometime during mid July, the planet can be found within the constellation Leo the Lion. (You’ll lose sight of Saturn much earlier if you don’t have a dead horizon.) In fact, Leo’s bright and bluish-white star Regulus can be used as a guide to finding Saturn throughout this entire period.

Regulus is at the bottom of the “sickle-shaped” star pattern that marks the head and front quarters of the lion (this asterism also looks like a backwards question mark, with Regulus in the location of the period). At the beginning of March look towards the east southeast and about halfway up off the horizon to locate Leo and Saturn.

“There is probably no single telescopic view that can compare to the power to excite wonder with that of Saturn when the ring system is not so widely opened but that both poles of the planet project beyond it. One returns to it again and again with unflagging interest, and the beauty of the spectacle quite matches its singularity.” (Garrett P. Serviss in his 1901 book, Pleasures of the Telescope.

Today, with even a small, inexpensive telescope, the causal astronomy enthusiast can catch a glimpse of Saturn and his rings. Keep in mind when Galileo Galilei first observed Saturn in July 1610 with his telescope having a one-inch diameter lens providing a magnification of 30 times, he was unable to resolve the rings. He observed what he believed to be two moons on either side of Saturn’s disk (it looked like Saturn had ears or handles), which didn’t change position like Jupiter’s moons did. He soon lost interest.

When he next visited Saturn the moons were gone! This event was something Galileo could not explain, and he died before the true nature of his observation was discovered.

As Saturn revolves around the Sun in his 29.5 year orbit, the angle of the rings varies by just over 27 degrees relative to the Sun. So, approximately every 15 years the Earth passes above or below Saturn’s ring plane. Right now earthly stargazers are looking at the southern face of the rings. But that tilt is changing.

Over the next few months you can watch as the rings begin to “close-up.” Until May the rings actually open up a little, but thereafter they begin to close. Unfortunately when the rings are edge-on, September 4, 2009, we will not be able to see the event from Earth. In fact, earthbound astronomers do not get a favorable ring crossing event until 2038.

When this event can be seen from the Earth, the rings practically disappear when viewed through smaller telescopes. Larger telescopes reveal a very thin and tenuous line in the plane of Saturn’s equator.

Well, as fate would have it, when Galileo revisited Saturn the Earth was crossing the ring-plane and the rings (Galileo’s two moons) disappeared.

It’s amazing Saturn’s rings are visible at all, considering the planet’s distance from the Earth, and the fact that the ring plane is only about 328 feet thick (just larger than the length of a football field). Although there are hundreds of ringlets, you shouldn’t have any difficulty seeing the separation between the primary “A” (outer) and “B” (inner) rings, called the Cassini Division. This gap is only 2,175 miles wide. In comparison, the width of the “A” ring is 9,321 miles and the “B” ring is around 16,032 miles across.

The rings are comprised of irregularly shaped dirty snowballs, ranging in size from grains of dust to many particles the size of pebbles. There are also some “boulders” as large as a few hundred feet and some small mountain sized bodies. They all orbit Saturn along the planet’s equatorial plane.

When and if you ever tire of observing Saturn’s magnificent ring system, turn your attention to the planet’s salmon-colored cloud tops. The bands in its upper atmosphere are much less prominent than those of Jupiter. Very little cloud detail can be seen in small telescopes. Saturn would look very boring if it weren’t for its ring system. One thing you can look for though, is the shadow of the planet projected onto its rings.

At last count Saturn had about 61 moons! Only a handful can be visually observed with the telescopes available locally. Its four brightest are Titan, Rhea, Dione and Tethys, and you can watch these moons orbit Saturn like a solar system in miniature. Titan, which orbits Saturn in 16 days, will be the brightest and, during its greatest elongations east or west of Saturn, can be easily spotted. The next four in order of decreasing brightness are Iapetus, Enceladus, Mimas and Hyperion, which can all be spotted with moderately sized instruments.

Enjoy the beauty of this magnificently ringed world almost one billion miles from our home planet.

If you don’t own your own telescope, or the view through the one you do own is too small to see much detail, plan on visiting Seagrave Observatory (http://www.theskyscrapers.org) on Peep toad Road in North Scituate on any clear Saturday night (7-10pm).

You can also visit Ladd Observatory (http://www.physics.brown.edu/physics/commonpages/ladd/) located on Hope Street on Providence’s East Side on any clear Tuesday night (7-9pm).

Both web sites provide directions and weather closure information.

As always, keep your eyes to the skies.
Invisible Spiral Arms
Patrick Barry

At one time or another, we’ve all stared at beautiful images of spiral galaxies, daydreaming about the billions of stars and countless worlds they contain. What mysteries—and even life forms—must lurk within those vast disks?

Now consider this: many of the galaxies you’ve seen are actually much larger than they appear. NASA’s Galaxy Evolution Explorer, a space telescope that “sees” invisible, ultraviolet light, has revealed that roughly 20 percent of nearby galaxies have spiral arms that extend far beyond the galaxies’ apparent edges. Some of these galaxies are more than three times larger than they appear in images taken by ordinary visible-light telescopes.

“Astronomers have been observing some of these galaxies for many, many years, and all that time, there was a whole side to these galaxies that they simply couldn’t see,” says Patrick Morrissey, an astronomer at Caltech in Pasadena, California, who collaborates at JPL.

The extended arms of these galaxies are too dim in visible light for most telescopes to detect, but they emit a greater amount of UV light. Also, the cosmic background is much darker at UV wavelengths than it is for visible light. “Because the sky is essentially black in the UV, far-UV enables you to see these very faint arms around the outsides of galaxies,” Morrissey explains.

These “invisible arms” are made of mostly young stars shining brightly at UV wavelengths. Why UV? Because their nuclear fuel with impetuous speed, making them hotter and bluer than older, cooler stars such as the sun. (Think of a candle: blue flames are hotter than red ones.) Ultraviolet is a sort of “ultra-blue” that reveals the youngest, hottest stars of all.

“That’s the basic idea behind the Galaxy Evolution Explorer in the first place. By observing the UV glow of young stars, we can see where star formation is active,” Morrissey says.

The discovery of these extended arms provides fresh clues for scientists about how some galaxies form and evolve, a hot question right now in astronomy. For example, a burst of star formation so far from the galaxies’ denser centers may have started because of the gravity of neighboring galaxies that passed too close. But in many cases, the neighboring galaxies have not themselves sprouted extended arms, an observation that remains to be explained. The Galaxy Evolution Explorer reveals one mystery after another!

“How much else is out there that we don’t know about?” Morrissey asks. “It makes you wonder.”

Spread the wonder by seeing for yourself some of these UV images at www.galex.caltech.edu. Also, Chris Martin, principle scientist for Galaxy Evolution Explorer—or rather his cartoon alter-ego—gives kids a great introduction to ultraviolet astronomy at spaceplace.nasa.gov/en/kids/live#martin.

In this image of galaxy NGC 1512, red represents its visible light appearance, the glow coming from older stars, while the bluish-white ring and the long, blue spiral arms show the galaxy as the Galaxy Evolution Explorer sees it in ultraviolet, tracing primarily younger stars. (Credit: NASA/JPL-Caltech/DSS/GALEX).

Galaxy NGC 1512 is represented in both images. The visible light image on the left shows the glow of older stars, while the Galaxy Evolution Explorer ultraviolet image on the right shows the ring and long, spiral arms, tracing primarily younger stars. (Credit: NASA/JPL-Caltech/DSS/GALEX).

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.
## March 2008 Celestial Events

*Craig Cortis*

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>6:00am</td>
<td>Mercury at greatest western elongation.</td>
</tr>
<tr>
<td>5</td>
<td>5:45am</td>
<td>Waning crescent moon is to the lower right of Mercury (mag 0.1) and further to the upper right of Venus (mag -3.9).</td>
</tr>
<tr>
<td>7</td>
<td>pre-dawn</td>
<td>Mercury &amp; Venus paired in the pre-dawn sky.</td>
</tr>
<tr>
<td></td>
<td>12:14pm</td>
<td>New Moon.</td>
</tr>
<tr>
<td>8</td>
<td>3:00pm</td>
<td>Uranus in conjunction.</td>
</tr>
<tr>
<td>9</td>
<td>2:00am</td>
<td>Daylight Saving Time (EDT) begins, set clocks ahead 1 hour.</td>
</tr>
<tr>
<td>14</td>
<td>6:45am</td>
<td>First Quarter Moon.</td>
</tr>
<tr>
<td></td>
<td>11:00pm</td>
<td>Moon 1.7° N of Mars (mag 0.5).</td>
</tr>
<tr>
<td>20</td>
<td>1:48am</td>
<td>Vernal equinox.</td>
</tr>
<tr>
<td>21</td>
<td>2:39pm</td>
<td>Full Moon.</td>
</tr>
<tr>
<td>24</td>
<td>pre-dawn</td>
<td>Mercury (mag -0.3) 1° SSE of Venus (mag -3.9).</td>
</tr>
<tr>
<td>27</td>
<td>pre-dawn</td>
<td>Moon 0.5° SSW of Antares (mag 0.96v).</td>
</tr>
<tr>
<td>29</td>
<td>5:48pm</td>
<td>Lasts Quarter Moon.</td>
</tr>
<tr>
<td>30</td>
<td>3:00am</td>
<td>Mars at eastern quadrature (mag 0.8).</td>
</tr>
</tbody>
</table>

### Zodiacal Light
Visible in clear, dark skies after dusk; low in the western sky; late February-March 8, and again from March 23-April 6.

### Mercury & Venus
Paired all month, low in the east-southeast sky before dawn. They will be difficult to track after March 18.

### Mars
In Gemini; transits at 7:00pm on March 15.

### Jupiter
In Sagittarius; magnitude -2.0; rises at 3:40am on March 1, 3:00am on March 31.

### Saturn
In Leo; magnitude 0.3; transits at 11:30pm on March 15.

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**Article Review:** “Sharpest Snapshots Ever of Pluto’s Tiny Moons”  
*Astronomy Magazine*, February 2008, p. 21  
*Glenn Jacksons*

David Tholen of the University of Hawaii observed the Pluto system and captured 16 separate images of Pluto. Using Keck’s adaptive–optics technology Tholen was able to combine these 16 images into the best sharpest snapshots of Pluto and its tiny moons.

Looking closely at the image 3 separate tiny moons can be seen just inside the orbit of Nix. Just opposite Charon on the other side of Pluto there appears to be at least a dust cloud or perhaps 30 or more tiny moonlets. There is also a hint of a ring along the outer side of Charon’s orbit. These are observable with a magnifying glass of 5x-10x.

Walker S. Vannings’ team have been trying to determine the size of the dust particles in the Pluto’s outer rings. Vannings’ team has discovered 40 tiny moons orbiting Pluto. These moons are about 10 miles in diameter. The concern expressed by Walker S. Vanning is that the $650 million New Horizon spacecraft was launched without a particulate impact analysis because of the lack of information at the time of launch. The results suggest that the New Horizons Spacecraft will have its forward facing thermal insulation shredded by fine dust, and will be hit by particles about 1cm in diameter at 10 miles per second. The only hope for success is that New Horizons Spacecraft squeaks through a gap in the dust rings around Pluto.
**February Meeting Notes**

Friday, February 1, 2008; North Scituate Community Center

Glenn Jackson

Dr. Collins an Associate Professor at Wheaton college presented “Enceladus and Cassini” Dr. Collins presented an overview of the icy moons of Saturn and the prospects of finding life on these moons. Also included were the latest pictures from Mercury and also the Cassini mission. The presentation was well received and enjoyed by all of the attending members.

Business Meeting called to order at 9:10 by President Glenn Jackson • 56 Members were in attendance at the meeting

**Secretary’s Report:** Motion to accept as published in the February issue of Skyscrapers was passed.

**Treasurers’ Report:** Motion to accept as published in the February issue of Skyscrapers was passed.

1st Vice President Steve Hubbard:

Scheduled speakers: March 7th Ken Launie “Historical Astronomy” • April 4th Alan Guth “Inflationary Cosmology” • May 2nd Arne Henden “AAVSO” • June 6th Gerry Dyck “Cosmological Motifs in Southeast Asian Bronze Drums” • July 12th Father Doug McGonagle “Science and Religion”

2nd Vice President Kathy Siok:

Looking for banquet facilities for AstroAssembly

Historian Dave Huestis: Only 18 books left from the first publication run. Contact Dave if you have not ordered a book or to make arrangements to pick up your ordered book.

Star Party Coordinator Bob Forgeli: Scheduled Star Parties: Feb 12th @ Portsmouth Middle School • Feb 20th @ Cranston East High School • March 12th Scouts @ Seagrave • March 13th Christian Educators @ Seagrave • March 14th Scouts @ Seagrave • April 11th @ Steer Farm Elementary School

Trustees Tracy Haley, Bob Horton

Jerry Jeffrey: Work party to be scheduled to remove trees already cut down and remount the Loan-A-Dome. • Need more members trained on the scopes

Nominations Committee Jack Szelka, Joel Cohen, Rick Lynch: Ballot to be presented at the March meeting. • Any member may nominate any other member for any position at the March meeting. • Voting will be at the April meeting

Expansion Committee Jerry Jeffrey: Meditech grant was declined • Recommendations: Proposed expansion of the meeting room be tabled • Proposed investigation into physical handicapped restroom be tabled • Proposed purchase of a handicapped accessible Porta-John be tabled • The existing porta-John be removed from the property

New Business: New Member Robert Moore • Motion made to accept the expansion committee recommendations: Proposed expansion of the meeting room be tabled • Proposed investigation into physical handicapped restroom be tabled • Proposed purchase of a handicapped accessible Porta-John be tabled • Motion made to accept expansion committee recommendation: That the existing porta-John be removed from the property

Old Business: New Member Peter Campbell accepted into membership.

Good Of The Organization:

Next meeting March 7th at the Community Center • Next e-board meeting Feb 28th at Ladd Observatory @ 7 PM all members are invited to attend. • Amgen State Wide Science Fair March 15th volunteer judges needed. • Messier Marathon March 9th and 29th TBA

White Mountain: Brief overview of the planned trip to White Mountain June 28th – July 5th was presented by President Glenn Jackson

Meeting Adjourned: at 10:00 PM

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**Treasurer’s Report**

4/1/2007 through 2/15/2008

Jim Crawford

**INFlows**

Anniversaryinc 1,248.00
Astro Ass'y & Banquet 4,879.45
75th Anniversary Bookincome 1,140.00
Cookoutinc 342.00
Donation
Collationdonation 185.00
Other donation 125.00
TOTAL donation 310.00
Dues
Contributing 897.00
Family 970.00
Junior 20.00
Regular 1,840.00
Senior 210.00
TOTAL dues 3,937.00
Interest Inc (Savings/Cap One) 40.98
Magincome
Astronomymaginc 230.00
Skytelmagincome 494.25
TOTAL magincome 724.25
Starparty 347.00
TOTAL INFLOWS 12,968.68

**OUTFLOWS**

Anniversaryexp 2,270.12
Astroexp
Astrocater 1,050.00
Astrorestroom 110.00
Astrosupplies 128.76
Hallrental 100.00
Speaker Fee 203.18
T-Shirts 386.10
Tentrental 585.00
Other astroexp 698.03
TOTAL astroexp 3,261.07
Auto (Fuel) 20.00
Bookexp 20.00
Collation 449.48
Cookoutexp 650.00
Corporation Fee 30.00
Insurance (Zurich) 2,397.00
Membersubscriptions
Astronomymagexp 170.00
Skytelexp 503.24
Other membersubscriptions 92.95
TOTAL membersubscriptions 766.19
Portajohn 35.00
Postage and Delivery 85.78
Printing and Reproduction (75th Book) 2,889.00
Tax, Business (Cap One) 0.75
Trusteexp 2,073.68
Utilities
Electric 158.58
Propane 423.15
TOTAL Utilities 581.73
TOTAL OUTFLOWS 15,529.80

OVERALL TOTAL -2,561.12

SAVINGS ACCT 5,686.86
CAPITAL ONE MONEY MARKET 10,106.72
TOTAL NET WORTH 17,318.93
Participate in world-wide light pollution awareness activities.

GLOBE at Night is a simple star count activity that occurs during the dark of the moon in early March. If you can find the stars of Orion in the sky you can participate. Earth Hour is an event held in conjunction with Lights Out America that encourages everyone to turn off their lights for one hour, starting at 8pm on Saturday, March 29.
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.

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47 Peeptoad Road
North Scituate, RI 02857