



Newsletter of the  
Amateur Telescope Makers of Boston  
Including the Bond Astronomical Club  
Established in 1934  
In the Interest of Telescope Making & Using

Vol. 19, No. 6 June 2007

## This Month's Meeting...

Thursday, June 14<sup>th</sup>, 2007 at 8:00 PM  
Phillips Auditorium  
Harvard-Smithsonian Center for Astrophysics  
*Parking at CfA is allowed for duration of meeting*



Global city lights. Data courtesy Marc Imhoff of NASA GSFC and Christopher Elvidge of NOAA NGDC. Image by Craig Mayhew and Robert Simmon, NASA GSFC.

## LIGHT POLLUTION AND AMATEUR ASTRONOMERS

This month's meeting will focus on light pollution, and on strategies to become active on this issue in your locality and your own backyard. Author, good lighting advocate and amateur astronomer Bob Crelin and several members of the New England Light Pollution Advisory Group (NELPAG) will lead club members in a discussion of current issues and efforts in the fight against outdoor light trespass/glare and against outdoor over-lighting. Recent announcements about global warming, combined with heightened interest in "green" practices, make this an especially good time to raise light-pollution awareness.

Here's your chance to find out what is happening at the local, state, and federal level to save our night skies. The focus of the meeting will be to lay a solid groundwork of the major issues in light pollution so attendees can discuss this effectively in their own neighborhoods and towns. A discussion of effective strategies and examples of past successes and current activities will be used. More

importantly, you'll be able to ask questions of local light-pollution activists and learn how simple efforts can make a real difference in your own cities and towns. We will also have on-hand various ordinances, light fixtures, literature, and PowerPoint presentations related to saving our night skies.

Please join us for a pre-meeting dinner with our speakers at 5:45PM at Chang Sho Restaurant located at 1712 Massachusetts Avenue in our fair city, Cambridge, MA.

~ Virginia Renehan ~

## President's Message...

I hope many of you will attend this month's meeting on *Light Pollution and Amateur Astronomers*. I have heard some of you say you already know all about the issue, but I challenge you to sharpen your edge, share what you know with new members, learn more. We are nearing critical mass for a State Lighting Bill as many cities and towns across the Commonwealth have now passed local ordinances. Public education on this issue is key to saving dark skies for our communities, other amateur astronomers – and most importantly, for our children. I hope you will attend.

For those interested in learning more about light pollution you can contact [lightpollution@atmob.org](mailto:lightpollution@atmob.org) ATMob club member LP liaisons will help answer your questions, provide information and resources, and keep you up to date on LP activities.

I'd like to bring your attention to another interesting presentation: an exhibition of antique Johannes Bode 1801 Uranographia celestial charts and photographs from the Hubble and Spitzer telescopes. The Bode charts, size 25" x 36", were larger than previous charts and included some 17,000 more stars and 2,500 nebula than previous charts ever produced. The exhibition titled, "Celestial Bodies – Celestial Discoveries from the Antique to the Present," takes place at Gurari Collections, 91 Charles Street, Boston, through July 1, 2007. Gallery hours: Tues – Sat 11am – 6:30pm and Sunday from 12-5pm. Contact: 617.367.9800 or Russ Gerard at [gerard@gurari.com](mailto:gerard@gurari.com) with questions.

For an interesting look at Bode Uranographia at the New York Public Library go to:

[http://digitalgallery.nypl.org/nypldigital/dgkeysearchresult.cfm?parent\\_id=352232&word](http://digitalgallery.nypl.org/nypldigital/dgkeysearchresult.cfm?parent_id=352232&word)

Thanks go out to Bruce Berger, who organized last month's clear sky clock donations drive! And thank you to club 'president of vice', Steve Beckwith and Membership Secretary, Dan Winchell who organized a New Member Orientation at the clubhouse on May 19<sup>th</sup>. Folks were treated to a mirror grinding demo by Dave Siegrist. John Blomquist, John Maher and Al Takeda answered questions and gave a tour of the observatories, while Peter Richardson showed members the jazzy features of our new website. The evening was a great success and we hope all those new members unable to attend this time will come to the next event. It

was especially nice to meet young family members interested in astronomy.

The new JPL monthly video, "What's Up" for June is up on the JPL website. Have a listen and share with your friends, especially with your non-astronomy friends. It's a great way to introduce those easy-to-see objects with them.

Here's "What's Up for June"  
<http://education.jpl.nasa.gov/amateurastronomy/index.html>

The video is only 2 minutes long and packed with great amateur images of planets and more. There's lots to see this month! Most of the images on the site are submitted by amateurs. For those interested in astrophotography, you might consider sharing some of your high resolution images. Your submissions are welcome. Submit images in the highest resolution possible – include your first and last name, in an email, or in the actual image file. Send to Jane Houston Jones, JPL Senior Outreach Specialist, Cassini Program at [jane.h.jones@jpl.nasa.gov](mailto:jane.h.jones@jpl.nasa.gov).

Next month's "What's Up" focus is on the moon, and in August they will cover summer family fun, the Milky Way, and the Perseids. If you have any small videos or animations of a few seconds long - especially something moon related or family star gazing related send them along.

For the July they are looking for images of some of the lunar features, like Mare Crisium, Petavius, Theophilus, Cyrillus, Catharina (all three on one image), Hipparchus, Plato, Rupes Recta (the straight wall), Tycho and Copernicus at full moon, and on the terminator, Sinus Iridum, Mare Tranquillatis, Kepler, and any third quarter moon views.

For August, any Perseid images, and short animations will be welcome, as well as Milky Way images, or a couple of the summer nebula or clusters. Star party pictures are also welcome but you will need to have a release form and permission from the people in the picture. We have so many great images on our website. I hope some of you will consider sending in your work to JPL. Students are especially interested and inspired when they know the photos came from so-called amateurs.

As always your ideas are welcome. If you have any questions, feel free to contact me at [vrenehan@gis.net](mailto:vrenehan@gis.net). Clear Skies!

~ Virginia Renehan, President ~

## Annual Meeting Announcement...

The Annual Meeting of the Amateur Telescope Makers of Boston, Inc. will take place on June 14, 2007. During this meeting the election of the 2007-2008 Executive Board will take place.

## Nominating Committee Report . . .

The Chair of the Nominating committee, Eileen Myers, announced the club nominations for the next year.

President	Virginia Renehan
Vice President	Steven Beckwith
Secretary	Al Takeda
Treasurer	Gary Jacobson
Membership	Dave Siegrist
Member at Large	Bruce Tinkler
Member at Large	David Prowten
Member at Large	Chuck Evans

Per Articles IX of the ATMob Bylaws: Members shall have the right to offer additional nominations from the floor of the annual meeting, provided only that a suitable written notice, containing the name or names of the person or persons to be nominated from the floor at the annual meeting, and the signatures of at least Seven members, is filed with the Secretary not less than ten (10) days prior to the date of the annual meeting.

## May Meeting Minutes . . .

The May meeting of the Amateur Telescope Makers of Boston began with a talk by Dr. A. Anthony Stark, Astronomer in the Radio and Geoastronomy Division at the Harvard-Smithsonian Astrophysical Observatory. Dr. Stark was Principal Investigator and designer of the Antarctic Submillimeter Telescope and Remote Observatory (AST/RO), a 1.7 meter diameter telescope that operated at the Pole for a decade.

Dr. Stark talked about his early days working at Bell Labs developing receivers that eventually would reach in the terrahertz range when AST/RO was completed. He noted that "at that point we actually kind of met up with the guys who were moving downward in wavelength in the infrared".

It was in the 1970's that he started to work with Mark Dragovan, a graduate student from the University of Chicago, in the NASA airborne astronomy program. Not satisfied with the limited time on aircraft, Dragovan insisted that Antarctica was the place to do this type of science.

As it turns out, the sky is opaque at 100 gigahertz (GHz) and above except for places like Antarctica. "Antarctica is cold and that makes it very dry and it's also fairly high. The South Pole is just over 9300 feet or so, but because it's at the pole, the spinning of the earth flattens the poles, which gives a pressure altitude that is around 11,000 feet equivalent.

In 1988, Dragovan and Stark set up their first microwave detectors a mile away from the South Pole Station. Aside from the exploding stove, their stuff worked pretty well so that in 1991 a second exploratory expedition was mounted that was one of the early cosmic microwave background experiments. AST/RO followed shortly after.

After doing these expeditionary things Dr. Stark decided, “what we really need is a real building and a telescope that works year-round that is designed for these conditions and is totally automated. The AST/RO scope is an offset Gregorian and sends the beam up into the mirror in the elevation structure which then sends it out along the elevation axes and down through the azimuth axis and into the room below. So it's a reduced mirror Coude system, where there are two curved mirrors, the primary and secondary and a series of flats which gets the beams into these receivers. These are high frequency radio receivers at work by superconducting junctions. So they are SIS receivers and have to be cooled to liquid helium temperatures for the entire winter. That proved to be difficult because we've never had quite enough liquid helium. There were no reliable refrigerators that would just refrigerate down to 3 or 4 Kelvin at that time.”

Stark showed a picture of the inner few degrees of the Milky Way looking at Sagittarius (Sag.)-A where the black hole is located and Sag.-B where a large gas cloud is present. He explained that “a lot of the story of what I'm going to tell you about AST/RO relates to this picture and how we finally figured out what was going on. It turns out that all of this gas is reacting gravitationally to the central bar of the galaxy. The bar is almost entirely made of stars, a lot of them. Over 10 billion stars. The gravity of that bar, which is rotating with the spiral arms of the galaxy, forces the gas into particular orbits. This determines how rapidly it falls into the center.”

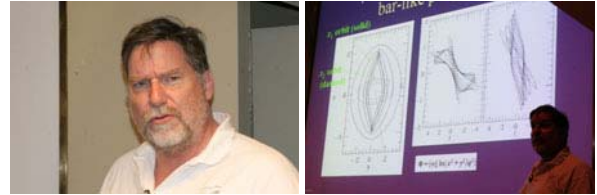
He described the three types of special orbits which have the property of being in closed orbits. His view was that “the critical thing about this type of orbit was that if you put gas onto that orbit the streamlines of the gas would not collide.”

As the gases from Sag.-B randomly move into this space, it will attempt to fall into the center but will hit itself, causing it to shock and dissipate and fall toward the black hole. However, if the gas happens to hit upon one of these closed orbits it will not shock and will move into the center more slowly. In the larger loops the gases will speed up and slow down and even stop before it falls down the other way. If the gases move into the smaller loop “you are going to have colliding streamlines and big dissipations. From there the gases really have to go onto one of those X-2 orbits. They continue all the way and in and ultimately into the tiny little X-2 orbit right around the black hole.”

If the gas is in this closed loop, how does it ever move toward the black hole? Dr. Stark states that the gas “actually accumulates there on the ring and the ring gets thicker and thicker. It finally he gets so thick that the ring itself becomes self gravitating and unstable. At that point it will make a blob. If you are a blob, dynamical friction will take hold. That blob of gas will have a million solar mass while the stars will have one solar mass and the larger mass will give energy to the lighter mass. The big

heavy thing will spiral into the middle. That's what we think is happening.”

Dr Stark only made a cursory mention of the South Pole Telescope. He showed some photos of the detectors and diagrams of the facility. He did say that it is a dark energy instrument and that it is beginning to work.



Dr. A. Anthony Stark and the AST/RO data showing the closed X1 and X2 orbits

Secretary, Membership, Treasurer and Clubhouse reports were given as part of the business meeting.

John Reed reports that the old Mosquito Magnet is broken and requires a re-engineering effort to bring it back into service. The old grill is also out of service but with the help of Dick Koolish and \$150 another grill has been purchased.

Observing report by Virginia Renehan: Special thanks to John Blomquist and John Maher for helping out on these star parties. Dana Hall School, Danehy Park (AAVSO), Bowman School, Harvard University, Cambridge Science Festival and Astronomy Day at the Clay Center.

Virginia announced an event on Sat, May 12, 1-5 pm at the Kavli Institute for Astrophysics and Space Research at MIT's "Astronomy in the City" for inner city kids. The middle school students will be giving presentations of their years study in Astronomy. The ATMob membership is invited.

Ross Barros-Smith reported on a star party for the Acton Garden Club.

Eileen Myers mentioned that Anna Hillier had a few hardbound copies of the club history but she left after the speaker finished. Let Eileen know if you ordered a copy. A report on the Workshop on “Astrophotography for Beginners” by Al Takeda at the last Clubhouse work party was also given.

Virginia noted the donation by Rick Feinberg of Sky and Tel of bound sets of Sky and Telescope Magazine from 1973 through 2006.

Bruce Berger mentioned that the Chelmsford town wide star party is cancelled. He also talked about the Harrington School Star party.

Framingham school will be having a solar party on June 2.

Haldun Menali has organized a star party in Dorchester on Fri, June 22.

On June 29-30, Project Astro training will take place. Contact Cathy Clemens at the CFA or contact Virginia.



The AAVSO has a summer position for a student. The information is on the back table.

A Nominating Committee report was given by Eileen. If a member has a nominee, please contact Eileen, Steve Clougherty or Art Swedlow. Currently, Chuck Evans has been nominated for Member at Large and Dave Siegrist has been nominated for Membership Secretary.

Bernie Volz reminded the membership that other nominees can be submitted with the proper signatures before the annual meeting. Please read the bylaws on the club website or ask the Executive board for assistance with this process.

Congratulation was given to Dan Winchell for his contributions as Membership Secretary for the past year.

Virginia forwarded information from Paul Valleli, stating that the original prototypes for the Nagler eyepiece are being auctioned off on eBay. The money for that auction will go toward the Stellafane pavilion. Paul also wanted Virginia to mention that they are struggling with payments on the pavilion. Donations will be greatly appreciated.

Gary Jacobson mentioned that we are still short of the \$500 matching funds for the AAVSO donation but we are close.

Dick Koolish showed some images from Astronomy Day at the Dexter and Southfield school. The weather did not cooperate but there were a few seconds of Sun before it started raining. Members Gary Jacobson, Phil Rounseville, Bruce Tinkler and Paul Valleli were present.

Charlie McDonald showed a brief video featuring Dr. Brian Marsden speaking at the consolidated Reading Star Party. This edited video will eventually be shown on the Reading cable access channel.

Bruce Berger showed some images from his trips to China. He described his visit to the ancient observatory in Beijing and showed various ancient astronomical instruments that were located on the roof. All were reproductions and were brought here from various parts of the country. He also visited the Beijing planetarium and was impressed by the tracking solar telescope that they had installed. Through a series of lenses and prisms they were able to split the beam and directed it inside the museum. One of the beams projected a 1-meter diameter disk of the sun in which he could see sunspots. Another exhibit had a projected 6 inch circle of the sun and with graph paper you can trace out spots on the sun. Bruce also visited the Polaris astronomical Association and gave the group a talk about amateur astronomy. He showed a 10-meter long rolled up sheet signed by 400 members of the astronomy group.

Bruce was also collecting for the Clear Sky Clock sponsorship.

John Sheff announced a CFA lecture by Dr. Roy Gould next Thursday, May 17 at 7:00 p.m., with observing on the roof afterward.

~ *Al Takeda, Secretary* ~

## Membership Report . . .

We have two new members this month:

Jeneen Adamo  
Robert Gonsalves

I have benefited in a variety of ways by serving as the membership secretary. It has at times been a challenging job for me. John Minkle and John Scheff have been a real help in managing this position. Peter Richardson has transformed the membership duties by moving the database on to the club web site resulting in a much easier process of membership management.

~ *Dan Winchell, Membership Secretary* ~

## Clubhouse Report . . .

### May 5, 2007 Work Party (W.P.) #5

13 members contributed to the Work Party effort: Sidney Johnston, Bernie Kosiki, John Blomquist, Paul Chichetti, Anna Hillier, Richard Koolish, Tom Luminello, John Maher, Eileen Myers, Dave Prowten, John Reed, Art Swedlow and Al Takeda. W.P. #5 started with the discovery that Bernie Kosiki's donated cooking grill has finally rusted through! A temporary solution was provided by Eileen Myers and Art Swedlow using a donated charcoal grill and a superb lunch was enjoyed by all. Tom L, John B. and John Maher cleaned the stone pile and filled the driveway low spots. Clapboards were replaced on the House above the front porch by Dave Prowten, while scraping and painting were finished by Bernie K, John Reed and Al Takeda. Treetops were leveled all along the east edge of the observing field by Sidney Johnston and Dick Koolish. The Home Dome base ring was temporarily assembled and preliminary measurements were taken for the design review by Dave P. and Paul C. The flower garden was extended in front of the porch by Anna H. and the home was vacuumed by Eileen Myers.



Bernie Kosicki and Al Takeda (l-r) preparing the Clubhouse for painting.  
Image courtesy of Dick Koolish.

16 members attended the astrophotography workshop presented by Al Takeda. Clouds necessitated a follow on session to be scheduled.

The clubhouse was utilized by members on 19 days in May 2007. Phil Rounseville and Brian Leacu continue to monitor the bluebird population for our hosts at MIT. Brian Marez spent two days mowing and trimming and was joined by John B., John M. and Dave Siegrist to try to stay ahead of the tall grass. A notice has been posted that ticks are bad this year around the clubhouse. This necessitates attention be given in keeping the grass short.

**June 1, 2007 Work Party # 6**

This day was again cloudy but the threaten rain was not realized. Contributing members: John Blomquist, Paul Chichetti, Steve Cloutery, Karl Goedecke, Anna Hillier, Dick Koolish, John Maher, Eileen Myers, Dave Prowten, John Reed, Jun-ichi Sano, Art Swedlow, Al Takeda, Sai Vallabha and Bruce Berger.

Eileen M. and Art S. cooked a delicious lunch using the new propane grill that was donated by Richard Koolish. Assembly was done by Paul C. and the old grill was dissembled by Dick K, Karl G and Jun-ichi Sano and readied for the dumpster. Anna H. continued to attend to the flower garden. Steve C. repaired and painted the telescope storage shed and the east wall of the Knight Observatory. John M. mowed the grass on the observing field and the South lawn to try to reduce the tick problem. John B. prepared the old stone pile area and planted grass. Karl G. trimmed the entire area with the “weed eater” that was repaired by Paul C. and Al T.



Dissassembly of the old grill by (l-r) Dick Koolish, Jun-ichi Sano and Karl Goedecke.

Everyone was happy to welcome Sai Vallabha back from his hospitalization and recuperation in India. He is walking very well and will be removing the steel plates from his ankles shortly. The welcome home cake that was presented to Sai was enjoyed by all.



Paul C., Dave P. and John R. completed the design review of the rain handler installation that will be needed to deflect rain from the roof that is destroying the bulkhead doors below. Bruce Berger showed the group some Chinese publications that he had brought back from his China trip. No workshop was held tonight due to unfavorable weather conditions.

We thank the following members: John B, Paul C, Anna H, Dick K, John M, Eileen M, Dave P, John Reed, Art S, Al T, for donating their time on both days.

We thank the following members Steve C, Karl G, Sydney J, Bernie K, Tom L, Jun-ichi S, Sai, V and Bruce B for donating their time for the days noted in the narrative. \* TBD.

**Clubhouse Saturday Schedule**

June 9	Ed Budreau	Gary Jacobson
June 16	Steve Clougherty	Steve Mock
June 23	John Maher	Glenn Meurer
June 30	Virginia Renehan + Workshop leader	
July 7	Chuck Evans	Al Takeda
July 14	(Bruce Gerhard)*	Henry Hopkinson

*~ John Reed, Steve Clougherty, and Dave Prowten ~*

**Successful New Member Night ...**

We had a solid turn out by members and their families and friends at the clubhouse for the May 19<sup>th</sup> “New Member Night”. New and veteran members received a clubhouse tour, a mirror grinding demonstration by Dave Siegrist, a tour of are permanently mounted telescopes by John Maher and John Blomquist and an excellent over-view and demonstration of our website by Peter Richardson. ATMoB executive board members were present to field questions and explain how the club worked. Although we were encumbered by cloudy skies, they didn’t seem to dampen the enthusiasm our new members brought to the club.

*~ Steve Beckwith – Vice President ~*



Dave Siegrist demonstrates mirror grinding at the New Member Night.

## Star Parties, Thank You! . . .

**May – Harrington School, Chelmsford** – Thanks to John Blomquist, Bruce Berger, John Buonomo, John Maher, George Paquin, Al Takeda and Dave Wallace.



Bruce Berger at the Harrington School Star Party in Chelmsford

**May 19<sup>th</sup> - Westford Clubhouse.** New Member Orientation – Thanks to Steve Beckwith and Dan Winchell for organizing the event. Thanks to members John Maher, John Blomquist, Dave Siegrist, Al Takeda and Peter Richardson for showing folks the ropes.

**May 24<sup>th</sup> Roxbury Crossing, Tobin Community Center** - Thanks to Ross Barros-Smith, Nanette Benoit, and Virginia Renehan.

**June 5<sup>th</sup> Radcliffe Alum at Harvard CfA.** Thanks to ATM's Ross Barros-Smith, Nanette Benoit, Dick Koolish, Virginia Renehan and John Sheff.

Hi Gang,

Thanks so much for all the help and contributions above and beyond. It was great. So many talked about how wonderfully you responded to all their questions. With your help the annual event has become one of the more popular choices for the Radcliffe alums during their week here - we compete against the Boston Pops no less - and look at the draw!

Stay well. One other point - while the Thursday nights have been bummers for observing, the two events you helped me with turned out to be clear nights (well, last night was okay - at least not a wash out)...the message there...if you want clear skies, have me schedule an event....just kidding.

Thanks again to each of you --- you were all super...  
Bruce Ward

~ Virginia Renehan ~

## Historian's Corner ...

The Friends of Mount Auburn Cemetery publish a small flyer every month on the occasion of notable persons. These flyers are available at the Information Kiosk just inside the Main Entrance at Mount Auburn Cemetery.

This month the flyer was for Jean Louis Rodolphe Agassiz, scientist, geologist, zoologist and teacher. 200th Birthday. May 28th, 2007. Born in 1807. Buried at Lot #2640. Bellwort Path. Born in Motier-en-Vully in French Switzerland. In 1846, the King of Prussia financed a trip to America for Agassiz. He gave talks at the Lowell Institute of Boston, Mass. He stayed on in America and gathered information and raised funds to establish Harvard's Museum of Comparative Zoology. He passed away on December 14, 1873. A service was given at Harvard's Appleton Chapel and a long procession went to the Cary family lot at Mount Auburn Cemetery. The marker is a 2,500 pound stone from the moraine of the Aar Glacier as a tribute from the mayor of Neuchatel and a gift of the Republic of Switzerland. This information was gleaned from the flyer for May. Source: Dictionary of American Biography, E Laurie, Louis Agassiz (1960), A. Keene, Earthkeepers (1994) The flyer was written by Judy Jackson/Janet Heywood. 5/99 for the Historical records of Mount Auburn Cemetery. All rights remain with The Friends of Mount Auburn Cemetery 580 Mount Auburn Street, Cambridge, MA.



(l-r) Jean Louis Rodolphe Agassiz and Mounted skeleton of Pampus argenteus from Harvard's Museum of Comparative Zoology. Agassiz image in the public domain. Skeleton image, Keith L. Jackson, © 2001 Non profit use acceptable.

Under Club history, Hard Bound Club history is now ready for the following people: Gary Walker, Chase Green, Jun-ichi Sano, and Sidney Johnston. Due to the increase in postage rates to \$4.00 for the History. I will not mail the history unless you insist upon receiving it that way. The postage will be paid by you and not the club. I will have them in my possession, so if you see me, please ask for it and have the \$25.00 ready to pay.

~ Anna Hillier - Historian ~

## Project ASTRO Orientation . . .

The Project Astro - Astronomers and Educators as Partners for Learning -Workshop event has been added to the web site.

Location: Boston Museum of Science. Date: Friday, June 29, 2007 and Saturday, June 30 that 9:00 AM. The Project ASTRO summer orientation workshop is set for June 29 and 30.

Project ASTRO is a national program that improves the teaching of astronomy and physical science by linking professional and amateur astronomers with local teachers. Each astronomer is matched with a teacher in a one-on-one partnership and commits to visiting the teacher's students at least four times during the school year.

The main focus of Project ASTRO teacher-astronomer partnerships is hands-on, inquiry based activities that put students in the position of acting like scientists - as they come to understand



more about the universe (and science in general). Excellent teaching materials are provided teachers and astronomers.

Help bring the excitement of scientific discovery through astronomy to students in your town. For more info visit the website at: <http://hea-www.harvard.edu/astro/>

Or contact workshop coordinator, Cathy Clemens at:

Project ASTRO Boston Coordinator  
Harvard-Smithsonian MS 83  
60 Garden St.  
Cambridge, MA 02138  
CfA: 617.496.7867  
CfA fax: 617.496.7577  
<http://hea-www.harvard.edu/astro/>

NESSIE Liaison for Education  
Museum of Science  
Science Park  
Boston, MA 02114  
MoS: 617.589.0227  
MoS fax: 617.589.0389  
[www.mos.org/nessie](http://www.mos.org/nessie)

~ Virginia Renehan ~

## Astro Trivia ...

A 19-YEAR OLD ENGLISH AMATEUR ASTRONOMER and deaf-mute, John Goodriche, discovered the first pulsating variable star, delta Cephei in 1784. The star varies in magnitude from 4.4 to 3.7 with a period of 5.4 days. Goodriche was also the first to explain earlier (1782) the cause of the variability of Algol--the well known eclipsing binary.

THE MICROWAVE BACKGROUND RADIATION and its relationship to the Big Bang can be better understood by imagining a fire in fireplace. After the flames stop, the coals are bright orange. As time goes by, the color fades to a dull red and finally disappears. But even after the coals have stopped glowing, they are still giving off heat as you can verify by holding your hand above them. We interpret these observations by saying that hot objects give off radiation, and as a body cools the radiation it gives off shifts to longer wavelengths. The coals go from giving off yellow and red light to giving to giving off only red to giving off invisible (but still detectable) infrared radiation as they cool. The kind of radiation given off at any time is a good indication of how long it has been since the fire was burning. --James Trefil, "Reading the Mind of God", Charles Scribner's Sons, NY 1998.

Check out my blog Simply Science at [www.simpsci.blogspot.com](http://www.simpsci.blogspot.com).

~ Ted Poulos ~

## Sunset at the Clubhouse ...



John Blomquist and Art Swedlow (l-r) set up for a night of observing and verbal bantering on the observing field at the Clubhouse.



Buzzzzzzz.... No, that isn't the Black Fly that flew off with the Club's Nutty Bars; it's only Art Swedlow doing the Mosquito Mamba.



Saturn - C-8 with a 2.5X Televue Powermate, Philips ToUCam, processed with Registax  
2007 May 26.

\*\*\*\*\*

**July Star Fields deadline**  
**Sat., June 30<sup>th</sup>**

**Email articles to Al Takeda at**  
**[secretary@atmob.org](mailto:secretary@atmob.org)**

\*\*\*\*\*

**POSTMASTER NOTE:** First Class Postage Mailed June 12<sup>th</sup>, 2007

Amateur Telescope Makers of Boston, Inc.  
c/o Dan Winchell, Membership Secretary  
20 Howard St.  
Cambridge, MA 02139-3720

## FIRST CLASS

### EXECUTIVE BOARD 2006-2007

PRESIDENT: Virginia Renehan (978) 283-0862  
[president@atmob.org](mailto:president@atmob.org)

VICE PRES: Stephen Beckwith (978) 779-5227  
SECRETARY: Al Takeda (508) 494-7877  
MEMBERSHIP: Dan Winchell (617) 876-0110

TREASURER: Gary Jacobson (978) 692-4187  
MEMBERS AT LARGE:

Bruce Tinkler (781) 862-8040  
Dave Prowten (978) 369-1596

PAST PRESIDENTS:  
2005-06 Bernie Volz (603) 968-3062  
2002-04 Eileen Myers (978) 456-3937

### COMMITTEES

CLUBHOUSE : John Reed (781) 861-8031  
Steve Clougherty (781) 784-3024  
David Prowten (978) 369-1596

HISTORIAN: Anna Hillier (781) 861-8338

OBSERVING: Virginia Renehan (978) 283-0862

## How to Find Us...

### Web Page [www.atmob.org](http://www.atmob.org)

**MEETINGS:** Held the second Thursday of each month (September to July) at 8:00PM in the Phillips Auditorium, Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge MA. For INCLEMENT WEATHER CANCELLATION listen to WBZ (1030 AM)

**CLUBHOUSE:** Latitude 42° 36.5' N Longitude 71° 29.8' W

The Tom Britton Clubhouse is open every Saturday from 7 p.m. to late evening. It is the white farmhouse on the grounds of MIT's Haystack Observatory in Westford, MA. Take Rt. 3 North from Rt. 128 or Rt. 495 to Exit 33 and proceed West on Rt. 40 for five miles. Turn right at the MIT Lincoln Lab, Haystack Observatory at the Groton town line. Proceed to the farmhouse on left side of the road. Clubhouse attendance varies with the weather. It is wise to call in advance: (978) 692-8708.

## Heads Up For The Month . . .

*To calculate Eastern Daylight Time (EDT) from Universal Time (UT) subtract 4 from UT.*

June 8 Last Quarter Moon

June 14 New Moon

June 21 Summer solstice, 18:06 UT (14:06 EDT)

June 22 First Quarter Moon

June 30 Full Moon

July 2 Venus passes 0.8 deg. S. of Saturn, 1 UT (21 EDT, July 1)

July 7 Last Quarter Moon