



STAR FIELDS

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. 7 July 2007

This Month's Meeting...

Thursday, July 12th, 2007 at 8:00 PM
Phillips Auditorium
Harvard-Smithsonian Center for Astrophysics
Parking at CfA is allowed for duration of meeting

MEMBER NIGHT

In keeping with summer tradition, the membership voted this month's meeting be a Member's Night/ Flea Market. So, if you have a telescope project, imaging program or other project you'd like to share with the group, let me know. This is also a great opportunity to sell or trade any of those extra items floating around your basement and garage. If you have a telescope, eyepieces, glass, optics, etc. that you would like to clear out, bring them to the meeting! We will have several display tables set up.

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

~ Virginia Renehan ~

President's Message...

Summer is in full swing, Stellafane is just around the corner, the Strippers are running here in Gloucester, and I've rediscovered my charcoal grill! Life is good. The observing could always be better, but the recent conjunction of Venus and Saturn was just beautiful. A few evenings were just right for sidewalk astronomy on Niles Beach with its open view to the west and clear view of Jupiter in the south.

Last month's meeting featured a great panel discussion on light pollution with NELPAG experts, a switch from our single-speaker meeting. Our thanks go out to all those that participated, and to Bob Crelin for donating several 'Glare Buster' light fixtures to the club. Remember, if you do have any questions regarding light pollution write the club LP liaisons at lightpollution@atmob.org. I'm sure they will be able to answer your questions and direct you to the appropriate resources.

It is membership renewal time again, and we have a new Membership Secretary, Dave Siegrist. We can all make Dave's job easier by renewing early and by using the automated features on the website when possible. This is also a good time to help the club further its education and public outreach mission in our communities and at the clubhouse by making a donation to the general fund or other funds. We recently allocated money for a new digital projector for use at clubhouse workshops. Our thanks go to Eileen Myers who made the suggestion and for her efforts over the last several months, putting these workshops together. She has helped set in motion what we hope will become a regular occurrence at the clubhouse.

We have opportunity to participate in another Night Sky Network teleconference this month on Wednesday, July 18th. Dr. Lucy McFadden, scientist with NASA's DAWN Mission will tell us about some incredible new science headed towards our very own asteroid belt. Dr. McFadden will give us an overview and update on the mission to investigate the protoplanets Vesta and Ceres. Check the club website for times and call-in details.

Visit <http://dawn.jpl.nasa.gov/> to access the latest information and educational resources for the DAWN Mission including classroom activities and multimedia resources. Two of the newest resources include a 13 minute video that explores the mission planning, instrumentation, and technological challenges at <http://dawn.jpl.nasa.gov/multimedia/index.asp>, and a mission events calendar. The latter is a six-year wall calendar for the years 2007 to 2012, highlighting major events that will take place during the mission. You can download the calendar from http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Dawn_Mission_Events_Calendar.html

For other free resources for students and grandkids check out the Earth and Space Science Explorers Poster at http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Earth_and_Space_Science_Explorers_Poster.html and Kepler Mission Lithographs at <http://kepler.nasa.gov/ed/pdf/factlitho.html> They show where the mission will look for terrestrial sized planets, distances to the parent stars, and why the stars were chosen. This is a good way to involve kids in an observing session of the summer triangle.

Hope you are all having a great summer thus far. As always, if you have any questions, feel free to contact me at vrenehan@gis.net. Clear Skies!

~ Virginia Renehan, President ~

June Meeting Minutes . . .

The June meeting of the Amateur Telescope Makers of Boston had a panel discussion on Light Pollution issues, its science and politics. Our panel for this discussion consisted of:

Dr. Daniel W.E. Green: Astronomer at the Harvard-Smithsonian Center for Astrophysics, Director of the Central Bureau for Astronomical Telegrams, founding member of The New England Light Pollution Advisory Group (NELPAG), member of the [International Dark Sky Association](http://www.darksky.org/) (IDA) and ATMoB member.

Bob Crelin: Dark-sky advocate, NELPAG member, IDA member, manufacturer of the “Glare Buster” and author of the children’s book, [There Once was a Sky Full of Stars](#).

Dr. Mario Motta: Cardiologist, Vice President of the Massachusetts Medical Society, founding member of NELPAG, IDA member and ATMoB member.

Mike Hansen: Environmental Educator, member of NELPAG and IDA.

Kelly Beatty: Executive Editor of *Sky and Telescope* magazine, Chairman of NELPAG, member of IDA and ATMoB.

Dr Green started off by introducing the panel to the membership and explaining why NELPAG’s mission is so important to the future of astronomy. The purpose is not to “preach to the choir but ... to inform you about what we are trying to do... and also find out why we aren't getting more help from people like you in this fight against bad outdoor night lighting, because we really need the help.”

He went on and talked about their new domain name and website, www.nelpag.org, and extended an invitation for members to join. They are a volunteer group and there are no dues. Dr. Green insists that “you have more power when you have a group doing this.” He thinks that the “ATMoB is in a good position to help out and that NELPAG can learn a little bit from you and you will learn a little bit from us.”

Back in 1993 while trying to show his 4 year old daughter the Milky Way, Bob Crelin realized that it was almost impossible to see from his backyard in Branford, CT. It was the realization that outdoor lighting was the problem that spurred him into looking at ways to convince the Planning Committee and Zoning Enforcement Officer to do something about it.

Before he approached the city, he first had to document and understand what constituted bad lighting. He had to find out “ways, how you can talk to the general public about this kind of thing. So I started to figure out, what are

the average things that the average person would care about...more everyday person's concern.”

Some of those concerns that had to be addressed were light trespass, glare, waste of electricity, environmental impact on plants and humans, and the effects on crime and vandalism.

Through his efforts, the town of Branford enacted a light pollution law. To get some of the details go to the *Sky and Telescope* website <http://www.skyandtelescope.com/resources/darksky> and go to the article on "How I beat Light Pollution in my Hometown". Initially businesses were skeptical, but after seeing how it significantly reduced their electricity costs and had no downside with regard to crime or injury claims, they are totally happy about it.

After the law was enacted for commercial zoning, Crelin was continually asked about good lighting fixtures for the homeowner. Seeing nothing, he decided to embark on a new venture and became a lighting manufacturer that produces the Glare Buster®.

Bob also wanted to “get the next generation aware and involved in this.” To this end he published the children’s book, [There Once was a Sky Full of Stars](#). “It introduces the night sky to the kids, why we are losing it and how we can get it back. Kids get it.”

Dr. Mario Motta concentrated on the glare problem and how it directly affects the eye, which in turn causes a public safety issue.

He first described the pupil, which can constrict down to 1 mm and can open to as much as 7 mm depending upon the amount of light it receives. That is a 50 to 1 range. As a driver moves down a typical street with the streetlight glare every 100-200 feet, the eye will “constrict and by the time it relaxes you are hitting another light and you are constricting again. So you are driving down the street blind, with her eyes closed, in effect.”

Moving on to the cornea, Mario explained that the lens is “like an onion” in that it grows every year. The middle layers eventually stop receiving a vascular supply and starts to crystallize and soon develop spots. This produces scatter which reduces contrast and obstructs the light.

Light then moves to the retina that has a chemical called rhodopsin which is responsible for converting the light to an electrical signal for the brain. When you have glare “you actually bleach the retina and it takes even longer than that one second to adapt back to the light.”

Mario’s conclusion about glare is that it will “bleach the retina, cause scatter, cause your pupil to constrict and in effect completely destroy what you're trying to use to drive down the road safely.”

Mike Hansen concentrated on the issue of excessive lighting contributing to Carbon Dioxide (CO₂) emissions. He brought up charts and calculations on how much CO₂ a single 100 Watt light bulb produces in a year. Then using outdoor lighting data, calculated that “7,600,000 pounds of carbon dioxide has been produced by the city of Cambridge, MA by street lighting alone.”

As a representation of the scale, Mike likened this volume to filling 3,400 Washington monuments.

Kelly Beatty reported on the political arena of light pollution legislation in Massachusetts and nationwide. As a positive step, MA Gov. Patrick ordered that all of the statehouse lights be changed to fluorescent. He also has a cabinet level Secretary of Energy. Kelly noted that with CO₂ emissions awareness on the radar this is “an auspicious time to be mobilizing for this fight”.

In the MA legislature, Representative Jim Marzilli of Arlington has introduced a light pollution measure named House Bill 808 which is now in committee. Marzilli has also attached Bill Number 3337 to the Omnibus Energy Efficiency Bill. One part of that bill requires “that the Mass highways, run a statewide analysis of their street lighting needs and how much of it could be corrected, improved or removed.”

Nationally, the United States Congress is looking at legislation involving all kinds of energy efficiencies. The IDA and NELPAG have submitted position papers to them for consideration.

Kelly concluded with (1) a plea to the membership to join the IDA. They are offering a new rate of \$20 if the applicant belongs to an astronomy club. (2) Join the NELPAG group to be informed about upcoming hearings, legislation or a call to action. (3) To be locally active. This process could be as simple as “find out what your inventory of your streetlights is. Find out how much you spend on electricity. Find out if you have any light pollution outdoor lighting legislation in your town.”

The panel then solicited comments, ideas and suggestions from the membership. Most questions centered on how one can obtain information on light pollution ordinances, studies and statistics.

The panel also recognized Matt Arsenal for his Eagle Scout light pollution video project and Bernie Kosicki for spearheading the light pollution bylaw for the town of Acton.

As a token of their appreciation for hosting the panel, Bob Crelin has donated 2 Glare Busters® and 2 parshields shields for the Club’s usage.



Light Pollution Panel (L-R). Kelly Beatty, Mike Hansen, Bob Crelin., Dr. Mario Motta, Dr. Daniel W.E. Green and Virginia Renehan

The chair of the Nominating Committee, Eileen Myers thanked the current board for all the work they did for the past year. The slate of officers was announced (see the New Election Board article) and was unanimously voted in

by voice vote by the membership. There were no dissentions.

The Secretary, Membership Secretary and Treasurers (by Virginia Renehan) business reports were given.

The AAVSO donation fund was \$15 dollars short but the Mario, Eileen and Kelly Beatty answered the call and this allowed the \$500 match to occur. A \$1000 check will now be sent to the AAVSO for their building fund.

John Reed gave the Clubhouse report. Painting of the Clubhouse and Observatories will be the primary goal for the next work parties. John thanked the members that volunteered their time to help. He also mentioned that Art Swedlow and Eileen have christened the new grill.

Virginia thanked members for helping out at the Harrington Star Party, the New Member Orientation at the Clubhouse, Roxbury Crossing (Tobin Community Center), Radchiff Alumni at Harvard CFA,

Virginia also announced the a day event for Boston area students at the MIT Stata Center on June 27th and the MIT Kavli Institute After School Astronomy program with Boston High School student participation on June 29th. Geneva Cliffs has been postponed until August. Project Astro has been rescheduled to Aug. 23rd and 25th.

Paul Valleli reported that Al Nagler has donated the first Televue Renaissance telescope and his first Televue eyepiece for the benefit of the Stellafane Pavilion fund. The scope was used by Steve O’Meara to write some of his stories. It will be auctioned on ebay.

Bernie Volz announced that there will be a meeting of the 2009 China Solar eclipse participants on Sat., Oct. 27, 7 – 9 pm. at the CFA. Bernie and Joel Harris will be doing a China site survey in August. If there is anything that you would like them to investigate, let them know.

Matt Arsenal presented a short portion of his light pollution video to the club.

While on a trip to visit his wife’s family, Joseph Rothchild showed some pictures of enterprising telescope street vendors in the ancient city of Xian that were selling views through some type of Gregorian telescopes. The three scopes were each attached to 3-wheeled motorized vehicles.

Charlie McDonald announced that he has completed his video of the talk by Brian Marsden at the Reading Star Party. It will be shown on Reading TV and he brought extra copies for anyone that wants one.

Paul Valleli reported that he and Virginia visited Ed Knight in Newton to get a verbal history of his recollection of the club in the 1950’s. A recording was made and it will be transcribed. Ed also donated an original copy of ATM book 1. Paul is trying to sell it for \$200 but if a seller is not found it will be donated to the Executive board for disposition.

A member night was voted on and approved for July 12th.

~ Al Takeda, Secretary ~

Membership Report . . .

We have three new members to the club this month:

Kathryn Hayes from Cambridge
Kristen Reyzer from Maynard
Suchit Shah from Boston

This is the time to renew ATMoB membership. The membership renewals are due September 1st. All you need to do to renew is send a check for the amount of your renewal to:

Dave Siegrist
34 Millwood Dr.
Shrewsbury MA 01545-2228

This year because the membership database is online you can update any of your own personal information on the ATMoB web site www.atmob.org once you have logged on. You can also fill out an online form for renewals, donations and subscriptions. This year you can renew your *Sky and Telescope* subscription directly with the publisher and receive the club subscription rate as long as your membership is up to date.

You can also download a renewal form from the ATMoB web site, fill it out and send it in as you did last year. Renewal forms will be available at the monthly meetings. Renewal forms will be mailed to members who do not have an email address listed with the club.

~ Dave Siegrist, Membership Secretary ~

Clubhouse Report . . .

We had 12 members contributing to our Work Party #7 effort at the Clubhouse on June 30th. Thanks to: John Blomquist, Paul Chichetti, Steve Cloutery, Bill Machell, John Maher, Eileen Myers, Dave Prowten, Jun-ichi Sano, Sergio Simunovic, Art Swedlow, Al Takeda and Sai Vallabha.

Paint scraping and sanding was the main job of the day with the crew splitting up into 2 teams. The first with John B., Paul C., Bill M., John M., Dave P., Jun-ichi S. and Sergio S. tackled the railing and balusters on the front and side porch. The 2nd group with Steve C. and Al T. performed a loftier job by scraping the 2nd floor shingles at the peak and eaves on the east side of the clubhouse. These locations are now ready for staining at our next work party on July 28th.

Lunch was prepared by our master chefs Eileen M., Art S. and Sai V. The menu consisted of gourmet hamburgers, hot dogs, chips and a delicious fruit salad made by Eileen.

~ Steve Clougherty ~



Steve Clougherty goes to new heights to scrape the old paint from the Clubhouse.

Clubhouse Saturday Schedule

July 14	TBD	Henry Hopkinson
July 21	Shilpa Lawande	Art Swedlow
July 28	Virginia Renehan + workshop leader	
Aug 4	Tom Lumenello	Eileen Myers
Aug 11	Rich Burrier	Tom Wolf
Aug 18	Gary Jacobson	Eric Johansson
Aug 25	John Reed + workshop leader	
Sept 1	David Siegrist	John Small
Sept 8	Brian Leacu	Phil Rounseville

Viewing Venus and Saturn at the Clubhouse

On Friday and Saturday night, June 29th and 30th, the Clubhouse attendees played host to a wonderful pairing of Venus and Saturn in the western sky just after sunset. On the 29th the angular distance between them was only 1 degree and by the following day that distance had shrunken to just 0.7 degrees. The members that were present were able to view Venus with its 26 percent crescent and Saturn's rings and moons in the same low powered telescopic field of view.

~ Al Takeda ~



Venus and Saturn. 2007Jun29. Takahashi E-180. Image by Al Takeda

Star Parties, Thank You! . . .

June 27th - MIT Stata Center – 22 students joined ATMoB members for a day learning about telescopes as part of a summer learning program sponsored by the MIT Kavli Institute. Thanks to John Sheff, Howard LeVaux, Nanette Benoit, Ross Barros-Smith, and Virginia Renehan.

June 29th - Harvard CfA Boston High School students participating in MIT Kavli Institute After School Astronomy program got their first look through telescopes. It was a terrific night – with 5 telescopes, including the 9” Clark, students saw a beautiful pairing of Saturn and Venus, Jupiter and its moons, Antares, the Ring Nebula, Alberio in the Summer Triangle, a nearly full Moon rising thru a pink band of clouds. The kids had a terrific time and some were even taking planet images on their cell phones to show their friends. Not bad for the light polluted skies of Cambridge! – Thanks to Ross Barros-Smith, Nanette Benoit, Dick Koolish, Anna Hillier, Howard LeVaux, Virginia Renehan, and John Sheff.

Project ASTRO Orientation

Project Astro - Astronomers and Educators as Partners for Learning -Workshop has been rescheduled for Monday and Tuesday, August 20th and 21st at 9:00 AM at the Boston Museum of Science.

For more information on Project Astro, see last month’s news letter and visit the website at:

<http://hea-www.harvard.edu/astro/>

You can register on line at :

<http://hea-www.harvard.edu/astro/join.html> or contact Cathleen Clemens, Project Astro Coordinator at CfA 617.496.7867

~ *Virginia Renehan* ~

Young Apprentice Astronomers Star Party at the CFA. A Report From the Field

June 29th 2007 brought a relief from the heat and a chance to enjoy the clearing skies over the roof of The Center for Astrophysics.

All aspects of good viewing came into play for a wondrous sight of Venus. Venus was a naked eye observation at 8:15. Venus taunted observers to see her just before sunset.

The Alvan Clark refractor was able to bring Venus to be viewed by all on the roof and later was joined by Saturn as the darkness overtook the light. This was so overwhelming that one girl was moved to use her photo cell phone to become an Astrophotographer. This spontaneous reaction was just what the whole program is about: to spark ingenuity into the young.

Thanks go to The Kavli Institute and The Education Department of The Center for Astrophysics.

~ **Anna Hillier – Historian** ~

New Executive Board ...

At the June Annual Meeting the members voted in the following members.

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

Astro Trivia ...

WHEN THE MOON WAS FORMED, it was only 10,000 miles from the Earth. The tides caused the Moon to move away from the Earth so that the lunar orbit has been growing ever since. The Earth’s tidal bulge always lies a bit east of the Moon due to the lag produced by the inertial resistance of the rocks and water. Since the Moon moves eastward in its orbit, the bulge tugs the Moon forward with the Moon never catching up. It acts like a carrot on a stick, speeding up the Moon’s orbital velocity. Any orbital object that is accelerated will climb to a higher orbit. The Moon is still climbing at a rate of about 1.5 inches per year.

A GALE-FORCE SOLAR STORM hit the Earth on March 13, 1989. It knocked out the Hydro-Quebec power grid and plunged Montreal and virtually all of Quebec into darkness. In space, the friction induced by contact with the solar particles herded 6000 satellites into lower orbits. The worst hit was the Solar Maximum satellite. It was bludgeoned to low orbit and soon entered the atmosphere, crashing into the Indian Ocean. The 1989 storm generated auroras all the way from the poles to Bolivia and the Florida Keys.--Seeing in the Dark by Timothy Ferris, Simon & Schuster, NY, 2002.

Check out my blog Simply Science at www.simpsci.blogspot.com.

~ **Ted Poulos** ~

**Sept. Star Fields deadline
Sat., Sept 1st**

Email articles to Al Takeda at

secretary@atmob.org

POSTMASTER NOTE: First Class Postage Mailed July 11th, 2007

Amateur Telescope Makers of Boston, Inc.
c/o Dave Siegrist, Membership Secretary
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FIRST CLASS

EXECUTIVE BOARD 2006-2007

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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

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.

July 7 Last Quarter Moon
July 14 New Moon
July 22 First Quarter Moon
July 24-31 Southern Delta Aquarid meteor shower
July 29 Full Moon
Aug 5 Last Quarter Moon