



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

**Vol. 20, No. 6 June 2008**

## **This Month's Meeting...**

**Thursday, June 12<sup>th</sup>, 2007 at 8:00 PM**

**Phillips Auditorium**

**Harvard-Smithsonian Center for Astrophysics**

*Parking at CfA is allowed for duration of meeting*

This month we'll learn about "*Jets from Black Holes in Active Galactic Nuclei*", with Dr. Alan Marscher of Boston University. Although black holes consume most of the matter that falls toward them, a small fraction gets heated and shot out along the poles in the form of jets having flow velocities very close to the speed of light. The most powerful jets are found in active galactic nuclei (AGNs), where the mass of the central black hole is millions or even billions of solar masses. Dr. Marscher will describe recent observations at radio, optical, X-ray, and gamma-ray frequencies that probe the jets closer to the black hole than has been possible previously. Surprisingly, the data are consistent with prevailing theoretical models, according to which the jets are propelled by magnetic forces.

Dr. Marscher joined the Boston University faculty in 1981 and served as Chairman of the Department of Astronomy from 1987-1997. Professor of Astronomy since 1992, he was the recipient of the 1998 Gitner Award for Distinguished Teaching in the College of Arts and Sciences. Marscher holds a Ph.D. from the University of Virginia. A specialist in quasars, high energy astrophysics and multi-waveband astronomy, he conducts research at observatories throughout the world as well as in space. He is the leader of the Blazar Research Group <http://www.bu.edu/blazars> in the Institute for Astrophysical Research <http://www.bu.edu/iar> at Boston University.

Dr. Marscher composes folk/pop songs in both English and Russian. A number of his songs have scientific and philosophical themes. Recordings and lyrics are available for listening or downloading at:

<http://www.soundclick.com/cosmosii>

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

*~ Virginia Renehan ~*

## **President's Message...**

This will be my last President's message. The last two years as president have gone by so quickly! I've met and gotten to know so many terrific people - and learned a lot in the process.

In retrospect, I think we have made some good strides forward in the last few years. An Ad Hoc Telescope Advisory Committee (TAC), which included Mario Motta, Phil Rounseville, Gerry Sussman, Paul Valelli, and Gary Walker, was formed to create a report that would serve as the long term guideline for budgetary planning, as framework for volunteer projects/activities, and a blueprint for preserving Club history and furthering strategic goals and direction of the Club.

The Executive Board worked hard to implement the TAC recommendations. We now have a re-vamped Observing Committee (OC) off and running, doing great work. Steve Beckwith made a new user-friendly mount for the 20", Mike Mattei led a terrific workshop on sketching at the eyepiece, and John Maher continues to train folks on the C14 when he is not running the Friday night astronomy class. The OC has recruited some terrific speakers for clubhouse workshops, including astrophotography wiz, John Boudreau and Al Takeda, and veteran variable star observer Glen Chaple. The Clubhouse Committee (CC), under the hands of Steve Clougherty, Dave Prowten and John Reed, is hard at work making enhancements to the clubhouse. We hope to have one of two donated domes up by summer's end. One dome will house the C14, so the Schuppmann telescope can return to the Ed Knight Observatory. The other dome will house the Dahl-Kirkham. Anyone interested in helping out with any of these projects, or supporting the OC by leading a workshop, contact the committee members.

We also celebrated some neat astronomy milestones - the anniversary of Sputnik, landing of the Mars Rovers, Comet Holmes - and ATMoB along with the North Shore Amateur Astronomy Club (NSAAC), through generous donations, brought a smile to the face of a budding young astronomer from Chile who was being treated for brain cancer at Boston's Children's Hospital.

With help from Ted Poulos and Glen Chaple we have enjoyed interesting content in the monthly newsletter. This is your club and I can't emphasize enough how valuable is your input. Don't hesitate to share your astronomy musings, equipment reviews, telescope projects and ideas by contributing to the newsletter.

At our June annual meeting, Gary Jacobson will be stepping down after 5 years as treasurer, and Bruce Tinkler as member-at-large. Both have done a terrific job. Thank you gentlemen, your contributions to the club are greatly appreciated!

In closing, I extend my thanks to Executive Board for their input and support. It also bears mentioning some special folks behind the scenes. My thanks to Steve Beckwith for his sense of humor and his support. Always there to lend a hand or an ear, Steve helped make the process great fun! Thanks also to Bernie Volz for his technical support and procedural knowledge. If there is a club policy Bernie knows about it, or can direct you to someone who does. He was always accessible to answer questions and help solve any problems that arose. Thank you, Al Takeda, for your dedication and hard work putting out the club newsletter. Al's attention to detail, his careful transcribing of meeting notes and his patience with my last minute submissions is greatly appreciated. It makes the job easy when you have people with a sense of teamwork and dedication you can rely on.

I look forward to taking a back seat at our meeting come July, so I can spend more time chatting with folks. Life-long learning is one of my favorite hobbies and our club is the perfect place for that – a group rich in knowledge and skill – not just of astronomy. So, thanks folks, for sharing what you know! See you at the refreshment table!

As always, if you have any questions or comments, feel free to contact me.

~ Virginia Renehan, President ~

## May Meeting Minutes . . .

The Amateur Telescope Makers of Boston including the Bond Astronomical Club hosted Dr. Sara Schechner, the David P. Wheatland Curator of the Collection of Historical Scientific Instruments of Harvard University, and the Secretary of the Scientific Instrument Commission of the International Union for the History and Philosophy of Science.

Dr. Schechner's talk, "The Adventures of Captain John Smith, Pocahontas, and a Sundial: Astronomy, Mathematics, and Power at the Time of Jamestown," gave us an insight on how astronomy played a central role in political thinking, technology and navigation in pre-colonial times.

Captain John Smith was 27 when he began his embattled leadership of the Virginia colony in June of 1607. He had already gained a reputation as an adventurer fighting with various nations against the Spanish and the Turks, taken hostage and escaped, shipwrecked twice, enriched himself with piracy and even took part in a mutiny aboard the very ship that was taking him to his new post as a governing council of the colony.

In December of 1607, Smith left the colony on an exploratory mission when he was ambushed by Powhatan Indians. After being wounded he surrendered and was taken to meet Chieftain Opechancanough. Smith presented

the chief his pocket compass explaining "the roundness of the earth, the course of the Sun Moon stars and planets." Although fascinated by this device Smith was almost executed by his captors before Opechancanough spared his life. He was then paraded around various villages before finally appearing before Chief Powhatan (Wahunsunacock). After a council, Captain Smith was set upon a stone slab and "just before a warrior was supposed to bash in his head his young daughter, Pocahontas, threw herself across Smith and asked that his life be spared. Pocahontas, a mere child of nine or 10 years, appears to have played a choreographed role in a shaming ritual." Smith was then released on the condition that he pledge loyalty to Powhatan.

The pocket compass/sundial presented to Opechancanough was much more than a compass. Smith describes his instrument as "a round ivory double compass style, a globe like Jewel that demonstrated the roundness of the earth and skies." Dr. Schechner describes it as a "Palm Pilot® of the 1600s".

Dr. Schechner described the instrument as a "sphere with two hemispheres. One contains a magnetic compass whose wire needle had been glued to the underside of a card painted with the wind rose. This card also called the fly is spun on a pivot and indicated north. The fly was protected by glass held down by a brass sundial stretched across the opening. Inside the other hemisphere, there typically was a brass bobble that showed the phases of the moon and could be used to determine the times of tides or you can rig the sundial into a Moon dial. The exterior of the ivory sphere was often ornamented with a delicate pattern or in Smith's example... inscribed with the great celestial circle demarcating the path of the sun, the planets and the heaven's. In this case the ecliptic, the equator, the Tropics of Cancer and Capricorn, the Arctic and Antarctic circles and the colliers. Now Smith's sundial was a powerful token. Indeed a model of the universe that he could hold in the palm of his hand. In shape and inscribed detail it mirrored the cosmic sphere of Aristotle and Ptolemy."

To Captain John Smith and his contemporaries in mathematics and science still believed that "disparate things like stars, weather, illness, civil disorder went hand in hand together. He endorsed the common view much more widely held was that the stars and planets exerted heavenly influences on the earth. It was believed that the mathematical study of nature would lead to a better understanding of God."

The world of the business and commerce started to change mathematics into "a much more practical rather than mystical or philosophical turn." Navigation across the ocean required different methods than dead reckoning. Ships captains would have to learn astronomy and geology in order to get to the Americas. Captain Smith was schooled in those mathematical techniques and wrote books on the art of navigation in 1626.

In closing, Dr. Schechner noted that "knowledge of mathematics, astronomy and the worldly applications in navigations, surveying, optics, chemistry, fortifications, gunnery, timekeeping and more gave the European settlers powers that seen magical to the Indians. And for better or ill the explorers would use these powers to dominate the New World landscape and transform the life of Pocahontas."



(L-R) Dr. Sara Schechner and a Replica of Captain Smith's Sundial

Virginia wanted to mention that Heleno DePina, who is part of the Youth Astronomy Apprenticeship Program, just received a \$20,000 scholarship to study astronomy and also won 1<sup>st</sup> prize at the Massachusetts State Science & Engineering Fair and a regional prize with his image of Comet Holmes.

Bruce Berger is renewing our sponsorship for the Clear Sky Clock and is trying to raise \$60 for each of the two clocks that ATMob sponsors. One clock is for Boston and the other is the Clubhouse. Bruce collected about \$192 this evening.

Virginia also wanted to thank Chairman Peter Bealo, Mike Hill and John Small for participating in the Nominating Committee. Virginia projected the recommended slate of officers for the upcoming elections. Peter Bealo, thanked all the people that came forward to offer themselves for the various positions. If it member wishes to run for office, seven names are required with a 10-day notification prior to the next meeting.

The Secretary and the Membership Secretary reports were given. The Treasurers report was not given..

Virginia gave the Star Party Report by mentioning National Astronomy Day being held at the Clay Center on the 10<sup>th</sup>. On June 3<sup>rd</sup>, a Star party is to be held at the CFA for the Radcliffe alumni and their families. A Star party will be held at Halibut Point in Rockport on June 21.

Kathie Clements asked Virginia to mention about Project Astro training coming up on June 13 and 14th.

Steve Beckwith reported that he and Mike Matti collimated the 14 inch Celestron and also collimated the 20. The 20 inch is currently operational. The altitude bearings are still little stiff and Dave Prowten added few cuts for clearance. Members are encouraged to use the 20 inch telescope.. Steve also reported that the ST-7 seems to be working fine. Steve will be holding classes with that CCD camera in the future. Please send him an e-mail if you are interested in getting instruction. You will also be giving a class on using the ST 7 for photometry. Steve also reported that Greg Getchell, a newer member, donated a small Meade alt-azimuth refractor. Steve asked the membership if anybody knew of an organization that could accept this scope as a donation. He felt that the scope would be better used by other organizations.

Steve Clougherty gave a clubhouse report and mentioned that there would be a Work Party a week from Saturday. The main work would be excavating holes for the pier and footings for the domes.

Virginia mentioned that there will be a picnic on July 5th and on September 20 at the Clubhouse in westford. Check the website for the details. Please bring some food to share.

Ross Barros-Smith announced that the Youth Astronomy Apprenticeship program will be hosting "Astronomy in the City" next Friday, May 16 starting at 6 p.m. This is a big annual event and the group will be presenting projects they have created since February. It will be held at the MIT Stata Center. The auditorium component of the show will feature students giving presentations of their work (7:15 p.m. to 7:30 p.m.).

Paul Valleli mentioned to the group said it was raining again and that his new Observa-Dome has arrived. Paul is currently working on framing the structure. The observatory will be called the White Pines Observatory.

Nanette Benoit showed the membership the projection solar scope that she won from the Dark Sky Network contest.



Nanette shows off her Projection Solar Scope

~ Al Takeda, Secretary ~

## Nominating Committee Report . . .

The Chair of the nominating Committee, Peter Bealo, announced the nominations for the 2008/2009 elections.

President -	Stephen Beckwith
Vice President -	Bernie Kosicki
Secretary -	Al Takeda
Membership -	Tom McDonagh
Treasurer -	Nanette Benoit
Member at Large -	Chuck Evans
Member at Large -	Dave Prowten

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.

## Clubhouse Report . . .

Bright sun replaced the drizzle that followed the heavy rain earlier on work session day May 17<sup>th</sup>. This sequence allowed John Blomquist and Dave Siegrist to fill the low spots around the driveway with stone packer delivered earlier that week. As the sky cleared the grass dried out and mowing was finished by John Maher and Steve Beckwith. Trimming was tackled by John Reed. By mid day the sun presented several small prominences at the 2 o'clock position through Paul Cicchetti's Coronado filtered refractor.

Anna Hillier and Eileen Myers extended the flower garden in front of the porch with a variety of plants brought from Anna's home garden. The garden is slowly taking shape and complements this old house. Meanwhile ¾" stone was added to the 10X10 foot assembly pad at the near barn front door by Steve Clougherty, Dave Siegrist and Dave Prowten. Five sets of lumber were cut and drilled for new 5 foot observing pads at the next concrete pour. Thanks to John Reed, Steve Clougherty, and Dave Prowten these items were stored for assembly at the next work party.

Support footings for the 10 foot Home Dome were started by Al Takeda, Paul Cicchetti, Eileen Myers, and Steve Clougherty. Two holes reached the required four feet depth; the other two hit a column of rocks which slowed progress. All are covered with scraps of plywood with heavy rocks on top for safety until the next work party.

Measurements were made to establish the height of the sonotube for the pier inside the clam shell dome. The guiding criteria was the eyepiece height of the 8" Dall Kirkham. This determination was carried out by Steve Clougherty, Dave Prowten, John Reed, and Paul Cicchetti with inputs from other members in attendance. The painting project was deferred until the June work session.

Mike Mattei again donated a number of mirror grinding attachments to the club. These will be put to good use by our intrepid mirror makers on Thursday nights. Paul C. continued to construct his precision barn-door mount for use on dark sky excursions. Later in the day the bluebird project was monitored by Phil Rounseville and Brian Leacu. It was revealed that 10 babies are currently thriving in the attended bird houses. Since no bats were found in the two bat houses, we will have to rely on the birds to keep the mosquito population down. Remember to use DEET or the most effective repellent you have found for your physiology since the mosquito population is again high.

Grilled lean hamburgers and turkey kielbasa were supplemented with baked chicken, salad with Vidalia onions, chips and beverages. This was prepared and

served by Art Swedlow and Sai Vallabha and were assisted by others.

Astrophotography discussions continued well into the night as a second batch of frontal clouds took over.

On May 31<sup>st</sup> Brian Maerz pulled clubhouse duty upon arrival from an overseas trip, and proceeded to again cut the grass around the clubhouse. On June 1<sup>st</sup>, Dave Prowten, Steve Clougherty, Art Swedlow and John Reed drove to Fred Ward's home to retrieve the clam shell dome segments that he donated to the club. A fifteen foot rental truck was required for this effort; this now allows the dome projects to proceed.

The next work session is scheduled for Full Moon Saturday, June 21<sup>st</sup>. As you can see, your attendance and assistance would greatly enhance the members' efforts in completing these ongoing projects. Each is designed to enhance our observing and telescope making capabilities and experiences. Know that you are welcome to join in.

We start between 10 and 10:30 am and enjoy solar observing, bird watching, and the calm of the evening twilight for planetary observations. We also get some work done.



(L-R) Anna Hillier and Eileen Myers working on the flower garden

### Clubhouse Saturday Schedule

June 14	Bruce Berger	Gary Jacobson
June 21	John Reed – Work Party	
June 28	Dave Siegrist	John Small
July 5	Ed Budreau	Rich Burrier
July 12	Henry Hopkinson	John Panaswich

~ John Reed, Steve Clougherty, and Dave Prowten ~

## Membership Report . . .

We have had several members join over the last month.

Emmanuel Durrand Boston  
Harry Drake Wayland  
Larry Ciummo Bolton  
Anthony Rizzolo Littleton  
Robert Scott Norwood

~ Dave Siegrist – Membership Secretary ~

## Annual Club Picnic

Saturday, July 5<sup>th</sup> is the date for this the first of this year's Club Picnics. It will be held at the Tom Britton Clubhouse in Westford! Starting at 3:00 P.M. Share good times with other ATMob members and their families. Talk about your astronomy stories, experiences and plans. Please bring a tasty dish to share - salad, main dish, dessert, soup, appetizer, fancy bread, anything goes! Bring your specialty! A serving utensil would be helpful. We will provide the hamburgers, kielbasa, potato chips, ketchup, mustard, coffee, paper goods and plastic cutlery. The food is always varied and delicious. There will be solar viewing during the day and night sky observing after sunset (all weather permitting). The picnic is on rain or shine. Bring lawn chairs or blankets to sit on. Bring suntan lotion and mosquito repellent. Observing will continue until Midnight if the sky is clear, so bring your telescope and your observing clothing and gear. The club's scopes will be open too.

Club members, their families and friends are invited. Do bring the kids and grandchildren. There will be a tour of the clubhouse facilities and a demonstration of mirror grinding. There will be opportunities for kids to take part in astronomy activities. We also plan to walk "up the hill", stopping along the way to talk about the MIT Haystack Observatory and the history of its buildings.

Directions to the clubhouse can be found on the last page of *Star Fields* and at the club website [www.atmob.org](http://www.atmob.org).

Questions - Email Eileen Myers [starleen@charter.net](mailto:starleen@charter.net) 978-456-3937.  
Don't miss the fun!

Clear skies,

Co-Hosts/Co-Chefs Art Swedlow, Eileen Myers, John Reed, Al Takeda and Sai Vallabha

Well done ... No Problem...



## Historian's corner . . .

I am forever amazed by the internet. An excellent newsletter and website, 400 years of the Telescope-Celebrating the International Year of Astronomy 2009.

Simply go to <http://www.400years.org/> then click on the newsletter link.

The best is yet to come.

~ Anna Hillier, Historian ~

## C14 Optical Alignment . . .

John Maher, Steve Beckwith and Mike Mattei opened the Ed Knight Observatory at 7:30pm on April 9th. While waiting for a darker sky, the telescope was pointed at the Moon. Right off, Mike could see that the optics were out of alignment. The seeing seemed better than "normal". A 10mm Orion eyepiece and a 2X Barlow (780X) was used for this check and the start of the subsequent collimation.

As the sky darkened, we moved the telescope to a 6th magnitude star just past the meridian. We studied it for awhile and evaluated the C-14's optics to be severely out of collimation. There were two short, but distinct flares coming out of the in-focus star.

We then attempted to adjust the secondary to locate and bring the Airy disk to center but we didn't have any success. After some more tweaking it was decided that the corrector was being squeezed by the screws holding it in place. The screws were loosened and sure enough, the flare decreased but still not enough to satisfy us and it could be better. After a great amount of testing, we settled on a screw tightness that minimized the flares on the image of the star. We then began normal collimation by tilting the secondary (via the set screws in its mount) but still had difficulty locating the Airy Disk in the out of focus image. Mike removed the Barlow, and the resulting brighter image allowed us to see the very faint Airy disk. We then successfully collimated the system via secondary tilt adjustments. After two hours of working on the optics, the C-14 was pointed at Saturn (which now was close to the Meridian).

Using the 10mm eyepiece (390X), Saturn which nearly filled the eyepiece field and was an astounding view that I (Mike) have never seen in a scope of this size. You could see the ring across the whole planet, the Cassini division was clearly visible as a dark area because of the ring tilt. The ball of the planet was just beginning to show detail and over all was well defined and nearly as sharp as could be. Steve could make out the Crepe ring despite the current tilt of the rings.

The seeing was the best I (Mike) had seen in years but now it is near 10 pm and seeing was beginning to fade as the radiation from the Earth began to take over. We request all C-14 users NOT to attempt to collimate the instrument, rather note any out of collimation suspicions you have in the log and contact John Maher.

~ Mike Mattei ~

## Twenty-Inch Telescope Available to Members . . .

The twenty-inch telescope is once again in the Ed Knight Observatory and is ready for member use. The telescope was originally mounted in a split ring equatorial mount and while it allowed tracking, the eyepiece was regularly left in a position that made observing uncomfortable for the user.

Last year, an ad hoc "Telescope Advisory Committee" of experienced club members, recommended to the Executive Board that the instrument be put in a Dobson mount. Steve Beckwith built the mount and Dave Prowten made final cuts and adjustment to the mount and the telescope was back in operation in late April.

The telescope's optical configuration is a bit different than amateurs' reflecting telescopes. Because of the long focal length, a third (tertiary) mirror is added to allow viewing without a ladder. In this design, light reflected from the main mirror is sent to a secondary mirror located in the front of the telescope. The secondary mirror directs the light back towards the main mirror to the tertiary mirror which is flat surface set at a forty-five degree angle to direct the light to the eyepiece.

Collimation may sound to be tricky but it is relatively easy and was performed by Mike Mattei and Steve Beckwith. Using a laser collimator in the eyepiece holder, the tertiary mirror was collimated to the secondary mirror via the usual three alignment screws on the tertiary mirror mount. The next step was to point the telescope at a star and adjust the main mirror via three bolts in its mount. A few final tweaks are needed on the collimation but the views at the moment are very nice.

All members are invited and encouraged to use this telescope the next time they visit the clubhouse.

~Observing Committee~

~ Steve Beckwith , John Maher, and Mike Mattei ~

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**June Star Fields deadline  
Sat., June 28<sup>th</sup>**

**Email articles to Al Takeda at  
secretary@atmob.org**

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**POSTMASTER NOTE:** First Class Postage Mailed June 11<sup>th</sup>, 2008

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

**EXECUTIVE BOARD 2007-2008**

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2002-04 Eileen Myers (978) 456-3937

**COMMITTEES**

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Steve Clougherty (781) 784-3024  
David Prowten (978) 369-1596

HISTORIAN: Anna Hillier (781) 861-8338

OBSERVING: Stephen Beckwith (978) 779-5227  
Mike Mattei (978) 264-0017  
John Maher (978) 568-1253

**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 18 Full Moon  
June 20 Summer solstice 23:59 UT (19:59 EDT)  
June 22 Double Shadow Transit on Jupiter (2:40 – 3:44 UT)  
June 26 Last Quarter Moon  
June 30 Crescent Moon occulting the Pleiades 6 – 8 UT (2 – 4 EDT)  
July 2 New Moon  
July 10 First Quarter Moon