



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. 20, No. 8 September 2008

This Month's Meeting...

Thursday, September 11th, 2008 at 8:00 PM
Phillips Auditorium
Harvard-Smithsonian Center for Astrophysics
Parking at CfA is allowed for duration of meeting

This month, we welcome Robert Naeye, the new editor in chief of *Sky & Telescope*, who will discuss NASA's Gamma-Ray Large Area Space Telescope (GLAST), recently renamed FERMI Gamma Ray Space Telescope.

It is a powerful space observatory that will open a wide window on the universe. Gamma rays are the highest-energy form of light, and the gamma-ray sky is spectacularly different from the one we perceive with our own eyes. With a huge leap in all key capabilities, GLAST data will enable scientists to answer persistent questions across a broad range of topics, including super massive black-hole systems, pulsars, the origin of cosmic rays, and searches for signals of new physics.

He was recently the Senior Science Writer in the Astrophysics Science Division at NASA's Goddard Space Flight Center in Greenbelt, Maryland. He previously worked as a senior editor of *Sky & Telescope*, and editor of *Mercury* magazine, which is published in San Francisco by the Astronomical Society of the Pacific. From 1995 to 2000, Robert worked as an associate editor and then senior editor for *Astronomy* magazine. He worked on the editorial staff of *Discover* magazine from 1992 to 1995.

Robert is the author of two books: [Through the Eyes of Hubble: The Birth, Life, and Violent Death of Stars](#) (1997) and [Signals from Space: The Chandra X-ray Observatory](#) (2000). He contributed to the recent book [Star Wars: Where Science Meets Imagination](#). He is the 2002 recipient of the American Astronomical Society High Energy Astrophysics Division's David N. Schramm Award for Science Journalism and the

Astronomical Association of Northern California's 2002 Professional Astronomer of the Year Award.

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

President's Message...

Well, here it is, Labor Day weekend the last unofficial hurrah of summer. Stellafane has come and gone, the Earth made its annual visit to the Perseid meteoroid stream, "The Conjunction" was held this weekend and the Earth is sailing around the sun toward the Autumnal Equinox. September through November is my favorite time to observe. The mosquitoes and high humidity days of summer are gone and the nights are cool, clear and bite free. It's also a great time to have the kids over to the house for an impromptu view of heavens before their bed time. Last week, Isabella, a local seven-year-old, wanted to see Pegasus. Fortunately, after an hour of viewing Jupiter and some Messier objects, I was able to fulfill her curiosity as "The Great Square of Pegasus" had just cleared the horizon. I then pointed out Cassiopeia and began to relate a bit of mythology to her around Perseus, Andromeda and Cassiopeia. I should have saved my breath as I quickly learned Isabella was far along the learning curve of sky lore. I sent Isabella home that night with a highly illustrated book of myths and sky lore. Since then, Isabella, along with her mother and father, read from the book every evening.

Occasionally I find a youth that has a great curiosity about a topic in which I have a certain level of expertise. I shortly find myself encouraging this interest via explanations and guidance. I don't know why; maybe it's my chance to give something back to the world community. I'm sure all of you have done the same.

Of course, you don't have to be a child to be curious about the sky. Our own membership demonstrates this on a regular basis every time a person new to astronomy joins the club. They want to learn the sky, which telescope to buy and how to use and maintain telescope. These new members are just as curious and enthusiastic to learn about astronomy as any seven-year-old.

So what can the ATM of Boston do to foster these members? First, we need to let them all know they've joined a great club of friendly knowledgeable amateur astronomers! Well, that's a tough call, if you don't know someone's name. So, at the monthly meetings, name tags will be available for everyone. Additionally, we'll follow a suggestion of Joseph Rothchild's of starting each meeting with members introducing themselves to their nearest neighbors at the start of each meeting.

Now that we all know each others names, what's the next step? Well, at the last Executive Board meeting we had two great suggestions that will be implemented in the next few

months. The first is to have experienced club members to avail themselves to the other members who live in their area. The second, will be to establish a list of astronomy and equipment experts willing to make themselves available to the membership for help in their areas of specialty.

We will use the website to implement these programs and I will soon be sending out an email providing more details and asking for members to volunteer and support these initiatives. This is a great opportunity for everyone to learn and grow his and her skills!

Enjoy these next few months of observing and take some time to foster a child of any age on the night sky. I wonder if in twenty-five years, Isabella will be one of our guest speakers from the Center for Astrophysics.

Clear skies to all,

~ Stephen Beckwith, President ~

July Meeting Minutes . . .

The July meeting of the Amateur Telescope Makers of Boston was Members Night which featured Mario Motta talking about his 32 inch relay telescope, John Boudreau's planetary images and John Sheff talking about NASA's planetary missions.



Mario Motta

Mario talked about the planning, construction and use of his new home, observatory and 32" relay telescope in Gloucester. He did not want to have a separate building in which he would have to maintain and shovel snow, so he had it integrated into his house. Fortunately he has a wife who allowed him to do this. In order to prevent vibrations, the pier supports and dome were finished before the rest of the house was completed.

The original scope was to be a Newtonian, since it was the only design he knew how to build, but Scott Milligan convinced him that he had a relay design that would give a flat field (46mm in diameter), no vignetting, no aberrations and no

coma. The only issues were that it could not vary more the 25 thousands of an inch and it also has 11 surfaces.

The 32-inch mirror has a spherical curve, which makes it easier to grind and polish. The secondary is a Mangin and 4 relay lenses are stacked and mounted through the mirror. The focal ratio of the system is f/6.

Mario hand built all of the parts, 584 pieces in all. Other parts were scrap from industrial centrifuges or satellite parts. He praised Scott Milligan and Paul Valleli for their optical guidance, Chris Halton for the electronics and members of the ATMob who assisted him in the construction.

The scope has been operational for over a year and Mario has been imaging recently with a new STL-1001 CCD camera equipped with an adaptive optics system that helps to minimize the twinkling effects of the atmosphere.

Mario concluded by showing a few of his images.



John Boudreau

John Boudreau gave an update on his planetary imaging of Mercury, Venus, Mars, Jupiter and Saturn.

John uses an 11-inch Celestron Schmidt-Cassagrain with an Imaging Source DMK webcam mounted in a 12 ft x 16 ft roll-off observatory in his back yard.

Most of his images in the last year have been focusing on Mercury but he did show a few Mars images. Mars' size was not large this past year and the seeing was not good for the most part, but John was able to get a few shots. To further enhance his images, he resorted to using an RRGB (red, red, green, blue) technique to try to penetrate some of the cloud layers. RRGB uses a red filter in the luminous channels for image processing. He was only able to get one night of really good seeing and that was close to the last opposition.

Most of John's images are stills but he does create movies on nights of poor seeing. He presented us with a movie of Mars with the moons Phobos and Demos orbiting.

John only had one night of good seeing for Saturn. His image showed one of the many storms that have been raging on that planet.

When Mercury was visible while the sun was still up, John decided to perform an imaging session and that image was eventually showcased in *Sky and Telescope* magazine. In order to get better images, he has been using 807 nm and 742 nm filters which are dependent on the seeing. If the seeing is good he also uses a 680 nm near infrared filter.

During a morning apparition, when his scope was still in shadow, John was able to image Mercury. The orientation of Mercury was such that the view that he got was one that the Mariner spacecraft had not imaged. Some of these images have been used by professionals as comparisons with their images. John has also done some comparisons of his images with the Messenger spacecraft. These images were also featured in *Sky and Telescope* for their Messenger article.



John Sheff

The final speaker for the evening was John Sheff, who has volunteered to be a NASA/JPL Solar System Ambassador. There are 500 members throughout the country that go out and give talks and presentations on planetary exploration. By giving 4-5 talks per year they are able to get “pretty amazing access to principle investigators, some of the scientists and engineers that actually run these missions”.

The docket for planetary science is busy this year, with the Cassini Equinox extended mission, the Messenger/ Mercury mission 2nd flyby, the Hubble repair mission and the Lunar Reconnaissance orbiter mission.

John concentrated on the Cassini mission for this talk. Cassini was launched in 1997, reached Saturn in 2004 and settled into orbit. Its primary 4-year mission has ended, and because the spacecraft is in good shape, it is now being reconfigured for an extended mission.

Ongoing exploration of the Saturnian system includes the planet’s interior, the atmosphere, the ring system, charged particles, magnetic fields and further studies of more than 60 moons.

Some of the interesting discoveries John showed are:

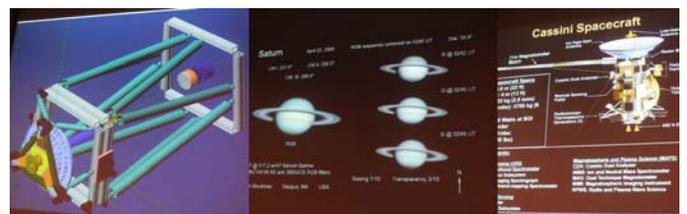
- 1) The hexagonal shapes, in infrared, on the northern polar regions of Saturn,
- 2) Possible spiral density waves in the rings due to orbiting moons inside the rings,
- 3) Disked or ellipsoidal shaped satellites,
- 4) The snow white trailing edge and the dark leading hemisphere of Iapetus.
- 5) A 20km ridge that stretches almost all of the way around Iapetus equator.
- 6) Water vapor geysers erupting from the surface of Enceladus.

Titan appears as an “ordinary or banal” place compared to the other moons but it has an atmosphere 1.5 times as dense as the Earth’s. It has clouds, smog, rain, apparent drainage channels, marshes and lakes filled with liquid methane. “Methane fills the role that water fills in the Earth’s hydrological cycle. There are methane rain, clouds and a whole cycle of formation in evaporation.” Cassini has discovered only one lake in the southern hemisphere. The northern hemisphere is in winter so it appears that the methane migrates to the cooler regions and condenses out forming more lakes.

Cassini also carried with it the Huygens descent craft which touched down on Titan’s surface. Images were taken during the descent and on the surface. Rising humidity levels were detected, which were probably caused by the heat of the spacecraft itself.

The Cassini Equinox extended mission will allow us to see the rings being illuminated edge on, and thus allow us to see phenomenon that may not be seen at any other time. Titan will be visited 26 more times, which will allow more radar mapping of the surface. NASA planners are even talking about extending the mission to 2017 for Saturn’s next solstice.

John spoke about the budget issues and the competition for funding of “flagship” missions. He then talked about proposed missions such as the Europa landing missions, Jupiter Polar Orbiter and a dedicated Titan mission.



(L-R) Relay scope, Saturn and the Cassini Spacecraft

The Secretary’s report, an introduction of new members by Steve Beckwith, the Treasurer’s report and star party reports were given.

Virginia Renehan announced star parties on July 25 (cloud date July 26th) at Halibut State Park, Rockport. John Sheff announced the CFA star party on July 11th and July 25th at Hopkinton State park.

Observing Committee report – The group will be setting up a class on how to balance your scope in August or Sept. A CCD class on photometry will be done in August. The C-14 is off-line due to a power supply recall from Radio Shack.

Tomorrow night is a prime time to observe the straight wall. This feature on the moon can be seen on an 8 or 9 day moon.

Eileen is wrapping up the Sky and Telescope binding project.

Virginia mentioned that Jim Foy has just become the president of North Shore Amateur Astronomer Club (NSAAC) and is asking if anyone in ATMoB is interested in speaking to their club.

Mario gave an update on Light Pollution issues. He will be working on a new legislative sponsor in the Fall. Mario was asked to go to Washington to testify before 20 Senators and their staff. Other members that will testify are Richard Stevens who did research on the possible link of bad lighting to breast cancer, Dr. Loxly, researcher at the Harvard medical school and Dr Blasky from NY.

Mario was also elected to the council on Science and Public Health at the American Medical Association (AMA). He will be trying to make the AMA support light pollution legislation. He is collecting world literature and placing it in one package and attempting get the House delegates to support it based on the medical effects of light pollution at the November meeting. If the vote passes, it will then go to the Council of Science which will write a report to Congress.

An Executive Board meeting was announced for July 14th.

Bernie Volz announced that if you want your photo on the member section of the ATMoB website, Al Takeda is willing to take your photo and upload it into your profile.

Paul Valleli announced that Stellafane is on July 31 to Aug 3.

Julie Kaufmann suggested that the organization institute a “buddy” system or a mentor that will approach new members to assist them.

Virginia talked about some ideas that are being worked on, such as name tags, web site navigation, and the new member packet.

The Clark refractor on the roof of the CFA was opened for Jupiter and lunar observing.

~ Al Takeda, Secretary ~

Clubhouse Report . . .

July and August Reports

In July and August, the momentum documented in the last report continued in spite of heavy rain storms. Three work sessions were staffed by 32 members and friends donating 60 days of work to our club.

Thank you's for a day of work go to Tom Calderwood, Steve Clougherty, Nina Craven, Scott Critz, Mark Emmerich, Karl Goedecke, Helios Lam, Mike Mattei, Steve Morlock, Fred Morlock, David Myers, and Junichi Sano.

Thank you for two days effort go to: Steve Beckwith, Harry Drake, Mike Hill, Eric Johansson, Sidney Johnstone, Dick Koolish, Brian Maerz, George Paquin, Sergio Simunovic, Bill Toomey, Dave Wilbur, and Tom Wolf.

And a tip of the hat for three days donation to: John Blomquist, Paul Cicchetti, Eileen Myers, Dave Prowten, John Reed, Art Swedlow, Al Takeda, and Sai Vallabha. We said aloha to Helios Lam on his return to Hong Kong to further his education, and to David Myers on his new job in Japan.

On July 19th, the clam-shell observatory pier hole was fitted with its sonotube precut to length, leveled, and held in place with back filled soil. Rebar was installed and the unit covered with plastic. This same procedure was followed for the four Home Dome® sonotube support columns. Several of these had come unglued by the heavy rains in June. Meanwhile the 10-square-foot pad frame in front of the near barn was leveled, fixed in place, and rebar installed over a bed of ¾ " stone. The five 60" square frames for the new observing pads were leveled in 6" deep holes dug by hand. Rebar pieces were added over a stone base. Caution tape secured all areas. A tasty lunch was prepared by Sai V., Art S., and Eileen M. assisted by Eric J. at all three work parties. Grass mowing also continued on these three days. When the house shadowed the sun, Anna's flower bed was tended to.

On July 26th, several sonotube tops were found compromised by the rain. The plastic coverings had not been effective. Dave scrambled to complete the repairs and all was ready for the 11am concrete pour start time. By day's end all pads were floated smooth, edged and covered with plastic to prevent rain splatter. J-bolts were inserted in the filled sonotube, tops smoothed and covered with plastic. The concrete was allowed to cure for several weeks before framing continued. As the concrete was curing, the composting toilet was treated to its annual cleaning and rotation, more grass was mowed, and weed whacking continued.

The August 16th session started early with Scott C. and Steve M. assisting Al T. in removing mold found in the refrigerator. The interior and contents were scrubbed with a bleach and soap solution and rinsed with clean water. Due to humid weather this summer and higher than normal frigid use for cold drinks, condensation under the freezer compartment dripped into the

lower areas where the mold was found. Three hours of steady work gave us a clean refrigerator. If you are going to replace your current working frig, remember the clubhouse for we have had this second hand unit for almost 20 years. Then the outside work continued: all framing was removed and stored and all plastic and cardboard were discarded. Dave P. and his crew completely framed the floor for the clam shell observatory. Soil was replaced around the pads and now it awaits grass seed. The excess metal table dismantling was started by Mike H., and later finished by club friend Fred Taylor with his cutting torch. The C-14 electronic checkout was continued by Steve and Fred M. Interior insulation installation continued by Mike H. and Dave W. The North exterior barn wall was scraped by a team led by Eileen M. West barn wall clapboard replacement was continued by the Thursday night team. Mike Mattei started to check out the club 6" Schupmann telescope to return it to its original optical excellence.

The next full moon Saturday work session is September 13th. Dave will need a team to assist in the floor installation for the clam shell observatory. Eileen will need a team to help paint the north barn wall and scrape the west barn wall. Grass mowing and trimming is again needed. There is plenty to keep us busy. Come on out and join us for a productive day. We start at 10am. See you there.

~ John Reed, Steve Clougherty, and Dave Prowten ~



(Left) Dave Prowten directs the cement pour with Paul Cicchetti assisting.
 (Right) Eileen Myers, Scott Critz and Harry Drake scrape the Near Barn.
 Images by Al Takeda

Clubhouse Saturday Schedule

Sept 13	Al Takeda – Work Party	
Sept 20	Art Swedlow	Sai Vallabha
Sept 27	John Maher	Steve Mock
Oct 4	Bill Toomey	Tom Wolf
Oct 11	John Reed – Work Party	

Membership Report . . .

Membership as of 9/6/2008 - 317 members.
 Same time last year - 257.

Membership renewal payments are due by the end of September and can be completed on-line using Paypal. No Paypal account is required.

<http://www.atmob.org/members/person.php?frid=renewals>

Renewal checks can also be mailed:

ATMoB
 c/o Tom McDonagh
 48 Mohawk Drive
 Acton, MA 01720

The Amateur Telescope Makers of Boston, Inc. is a 501(c)3 organization. Donations are gladly accepted and are tax deductible to the extent allowed by law. Consider making a tax-deductible contribution to the club when renewing your membership.

Please take the time to seek out and welcome our new club members:

- Richard Brown
- Dr. Bridgette Budhlall
- Scott Critz
- Jeff Hixon
- Stephen Moore
- Paul Norris
- Michael Segool
- Dracut
- Merrimack, NH
- Salisbury
- Quincy

~ Tom McDonagh – Membership Secretary ~

Executive Board Meeting...

An Executive Board meeting will be held on Tuesday, September 16th. The agenda will include reports from each officer and committee chairs. All members are welcome to attend the meeting to just listen or present specific issues to the Executive Board. In the case of the latter, please notify me at least one week in advance of the meeting to insure there will be time on the agenda to discuss your topic. Meeting minutes from each board meeting can be found on the ATMoB website.

~ Steve Beckwith ~

Conjunction Report . . .

The Connecticut River Valley Astronomers Conjunction was held on August 29-31 at the Northfield Mountain Recreation and Environmental Center in Northfield, MA, less than 1.5 hrs from Boston. The skies are fairly dark there, so many folks set up telescopes for observing. Campsites with hot showers are nearby at Barton's Cove, and there are local hotels and B&B's. As usual, some members took the riverboat cruise on the Connecticut River through the French King Gorge. About 20 ATMoB members drove up to attend the lectures on Saturday. Light refreshments were available all during the convention. Swap tables had items for sale. The talks, as always, were varied and very interesting, something for everyone, newbie to long-time amateur.

The morning roundtable included a lively debate over the need for historians for the Digital Age. Needed are methods to select, save and preserve some of the vast amount of information and creative work that is only available on the Internet and not in book form. Katrina and 9/11 blogs have already been lost, including the information they contained on what people were told to do during the emergency and people's experiences. Recommendations were that archivist courses should be taught at colleges. The future of astronomy discussion predicted that prices will drop on computer controlled Dobsonian telescopes, more robotic observing and less backyard observing, more pattern recognition Go To's, more spectroscopy and data collection performed by amateurs. During the light pollution presentation Sue French recommended using the term "directed lighting" in place of "full cut-off". Long Island, NY resident Phil Harrington told the story of how his letter to his Brookhaven town councilman in which he expressed lighting concerns regarding the conversion of a nearby sod farm into an athletic field resulted in Brookhaven having the most stringent light pollution laws in the nation, including jail time for repeat offenders. Copies of the Brookhaven Exterior Light Standards law were distributed. Audience response to the presentation "Astronomy clubs: Where's the Next Generation?" brought out the suggestion for astronomy clubs to work with home school organizations. Copies of the Astronomical League's Junior Activities Manual "How to Organize & Operate a Junior Astronomical Society" by John L. Cotton, Jr. were distributed. ATMoB's Paul Valleli gave a very informative presentation on the history of optical fabrication, the physical changes to glass when using fracture mode grinding, and magnetorheological finishing.

ATMoB's Ed Los gave a presentation entitled "Finding Needles in a Haystack: Analyzing Scanned Images of the Harvard College Observatory Plate Collection". Ed, now a staff member of the HCO, talked about some of the problems addressed during the initial phase of digitizing some of the 500,000 glass plates in the collection: different types of time recordings were used, even local sidereal time; the placing of a prism on the objective when the image on the glass plate was made could subtract several magnitudes, and also could create a moving spot - a ghost image; dust from smoking cigarettes near the plates made stars where they did not exist; backs of plates have ink notations, sometimes creating a black film on

the plate; some plates were not properly developed. See <http://tdc-www.harvard.edu/plates/> for the history of the plates and more information on the project.

Kevin Kopchynski who is an astronomy educator at the Springfield Science Museum, gave a wonderful lecture, starting with Ole Romer, who in the late 1600's demonstrated that light has a finite velocity by observing that the times between eclipses of Io by Jupiter got shorter as Earth approached Jupiter, and longer as Earth moved farther away. The lecture continued step by step, to the discovery and nature of black holes, a well thought-out overview of the subject.

"Pretty Astrophotography, Pretty Cheap" by astrophotographer Larry Landolfi, was not what I expected. Larry presented some his "big and dramatic" photos taken of sunrises, moonrises, eclipses, star trails, the Milky Way and more. His "The Milky Way above a country road in Texas" was voted an Astronomy Picture of the Day best picture. Larry told us exactly how he made them. Look for his photos on his website: www.landolfiphoto.com/Site_2/ASTROPHOTOGRAPHY.html

The Saturday evening talk was "Eccentrics, Old Maids, and Just Plain Maids: The Pioneering Women Spectroscopists of Harvard" given by Dr. Kristine Larsen, professor of Physics and Astronomy and Director of the honors program at Central Connecticut State University and also a member of the Springfield Telescope Makers. Dr. Larsen gave an outstanding talk about women dedicated to astronomy. The first women hired to work at Harvard in the field of astronomy were hired by Arthur Searle in 1875 and included relatives of two staff astronomers. Hired to do data analysis, he felt they only had to know arithmetic and have a good handwriting. Harvard Observatory Director Edward C. Pickering needed a work force to analyze thousands of photographs of star fields, and so hired 40 women ("Pickering's harem"). The women earned 25-cents/hr, worked 6 days/wk, 7hrs/day. They did the analyzing and classifying of data and were prohibited from doing any original work. Not being able to find a man to take over the Henry Draper Catalogue of stars project, Pickering hired his housekeeper, saying, "My maid can do a better job." Williamina Paton Fleming had been a young teacher in Scotland, abandoned by her husband before their son was born, came to America, and was employed by Fleming as his housekeeper. The project she was hired to do was to gather and classify the photographic spectra of about 100,000 stars. Based on the strength of hydrogen spectral lines, Pickering had Fleming develop a simple classification scheme and she did about 10,000 classifications. See http://ocp.hul.harvard.edu/ww/people_fleming.html and other websites. Dr. Larsen talked about many other women in astronomy, and talked about some of her personal interviews with contemporary women astronomers. She is planning to write a book on the subject.

Dave Gallup created yet another winning Conjunction t-shirt design: a very antique-looking telescope with observer. Dinner was held outdoors and offered an opportunity to meet other attendees.

~ Eileen Myers ~

Club Picnic . . .

Celebrate the Autumnal Equinox! Come on Saturday, September 20th to the second of this year's Club Picnics, held at the Tom Britton Clubhouse in Westford, starting at 3:00 P.M.

As always, it will be a potluck picnic, so bring something tasty to share. We will provide hamburgers, kielbasa, potato chips, paper goods and plastic cutlery. Hydrogen-alpha solar viewing, night sky observing. Bring lawn chairs or blankets. Bring suntan lotion and mosquito repellent. Bring your telescope and your observing clothing and gear. The club's scopes will be open too. 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 facility. Directions to the clubhouse can be found on the last page of *Star Fields* and at the ATMoB website.

Club members, their families and their 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.

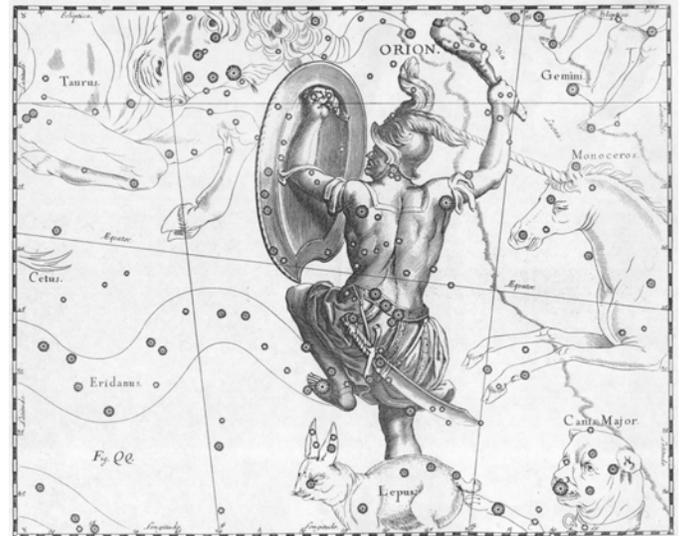
Questions - Email Eileen Myers starleen@charter.net
978-456-3937.

Don't miss the fun!

Clear skies,

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

~ Eileen Myers ~



Johannes Hevelius drew the Orion constellation in *Uranographia*, his celestial catalogue in 1690. Image in the public domain.

Thoreau on Astronomy . . .

"The light of Orion's belt seems to show traces of the blue day through which it came to us. The sky at least is lighter on that side than in the west, even about the moon. Even by night the sky is blue and not black, for we see through the veil of night into the distant atmosphere of the sky."

Journal, 9 September 1851

~ Submitted by Tom Calderwood ~



Ed Los speaking at this year's Conjunction.

October *Star Fields* deadline
Friday, September 26th

Email articles to Al Takeda at
secretary@atmob.org

POSTMASTER NOTE: First Class Postage Mailed Sept 8th, 2008

Amateur Telescope Makers of Boston, Inc.
c/o Tom McDonagh, Membership Secretary
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Acton, MA 01720
FIRST CLASS

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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.

Sept 15 Full Moon
Sept 22 Last Quarter Moon
Sept 22 Autumnal Equinox
Sept 29 New Moon
Oct 7 First Quarter Moon
Oct 8 Draconid Meteors peak (1 hr. UT)
Oct 14 Full Moon