



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

Vol. 18, No. 10 November 2006

This Month's Meeting...

Thursday, November 9th, 2006 at 8:00 PM
Phillips Auditorium
Harvard-Smithsonian Center for Astrophysics
Parking at CfA is allowed for duration of meeting

This month's meeting will feature Dr. Owen Gingerich, Professor Emeritus of Astronomy and of the History of Science, at Harvard University and a senior astronomer emeritus at the Harvard-Smithsonian Astrophysical Observatory.

This past summer, Professor Gingerich chaired the International Astronomical Union's planet definition committee. Since 2005, when astronomers found Xena, an object bigger than Pluto in the outer solar system, the controversy as to *what defines a planet* has been a topic of heated debate. Was newly discovered Xena the 10th planet? What is a planet anyway? While Professor Gingerich recommended a definition that would have included Pluto, Ceres, Xena, and dozens of other potential planets, the IAU committee chose to adopt a definition that eliminated Pluto and Xena leaving 8 planets in our Solar System.

In his talk, "Planet Peril in Prague: What Happened to Pluto," Professor Gingerich will discuss what went on behind the scenes at the IAU's historic meeting.

Professor Gingerich's research interests have ranged from the recomputation of an ancient Babylonian mathematical table to the interpretation of stellar spectra. He is co-author of two successive standard models for the solar atmosphere, the first to take into account rocket and satellite observations of the sun; the second of these papers has received over 500 literature citations.

In the past three decades Professor Gingerich has become a leading authority on the 17th-century German

astronomer Johannes Kepler and on Nicholas Copernicus, the 16th-century cosmologist who proposed the heliocentric system. An account of his Copernican research, *The Book Nobody Read*, published in 2004 by Walker & Co., has now been issued as a Penguin paperback and in seven foreign editions.

Please join us for dinner with our speaker at 5:45PM at the Changsho Restaurant located at 1712 Massachusetts Ave. in our fair city, Cambridge, MA.

President's Message...

Hopefully, the weather will cooperate for next week's Mercury transit on Wednesday, November 8th. The event will be visible in our area between 2pm and 4pm when Mercury will be seen in silhouette against the sun, appearing as a tiny dark sphere near the edge of the solar disc. This is the first time since 2003 that Mercury's orbit will be aligned with ours such that we will be afforded views of it moving across the face of the sun. If you miss this one, the next transit isn't for another 10 years!

You will need an unobstructed view of the horizon to observe this short-lived event. For those observing the sun for the first time or observing with students check the *Beginner's Guide to Solar Observing* from Sky & Telescope at http://skyandtelescope.com/observing/objects/sun/article_162_1.asp

and *Eclipse Watching: How to Make a Solar Filter* at <http://www.astrosociety.org/education/publications/tnl/41/filter.html>

If weather does not cooperate, go to NASA's Digital Learning Network at <http://nasadln.nmsu.edu/dln> for a live webcast of the transit beginning at 1:30 EST. This webcast is geared toward students and informal educators.

Although Mercury is the nearest planet to Earth *on average*, orbiting the sun in a hasty 88 days, we still know very little about our tiny neighbor. Some interesting information on NASA's Messenger Mission to Mercury launched in 2004 and arriving in 2008 can be found at www.nasa.gov/mission_pages/messenger/main/index.html.

NASA hopes the mission will answer such questions as: Why is Mercury so dense? What is the structure of Mercury's core and its magnetic field? What are the unusual materials at its poles? It is interesting reading.

The Club has received several donations over the last few months including various eyepieces from Fred Ward, and two fiberglass domes: one from the Ayer-Anderson family of Gloucester and one from former ATM of B member, Don Dilworth, of Maine. Thank you all for your generosity! To compliment the Clubhouse Committee's Herculean efforts of maintaining the clubhouse, handling these and other donations, and improving currently owned equipment, I have assembled an ad hoc telescope advisory committee. The committee will prepare a condition report on the club's telescopes and related equipment with recommendations for maintenance, member use, and disposition of surplus materials among other things. Members of the ad hoc committee include

Mario Motta, Paul Valleli, Phil Rounsville, Gerry Sussman, and chair, Gary Walker. Their blend of long-time club involvement, expertise in optics, telescope making and observing will be of great benefit to the club and we look forward to their report in the coming months.

We have had a request from a writer in Brunswick, Maine who is writing a book about Baxter State Park and the amateur astronomers who have spent time at Nesowadnehunk Field looking at the heavens. The field is a popular spot for observing in July due to its exceptionally dark skies. If anyone has observed at Baxter in the 70's, 80's, or more recently, and you would be interested in providing the author an account of your experiences there, please let me know and I will put you in touch with her.

A reminder for star party volunteers: check the website for upcoming events and details. We always need additional volunteers. To those that do attend, your expertise and enthusiasm are greatly appreciated. Kids, parents and teachers are always appreciative of your efforts as evidenced by the high volume of repeat requests for such events. Special thanks this month to Bob Naeye who gave a brilliant talk on the Mars Rovers to a group at Prospect Hill Park in Waltham after their star party had been cancelled due to bad weather. Thanks Bob! Hope to see many of you at the next star party!

-Virginia Renehan, President -

Oct. Meeting Minutes . . .

The October meeting of the Amateur Telescope Makers of Boston featured Dr. Hale Bradt, Professor of Physics Emeritus MIT speaking on "The Instrumental Life of An X-Ray Astronomer: Chasing Neutron Stars and Black Holes."

Dr. Bradt first talked about the early days of x-ray observations with the MIT rocket flights from the White Sands missile range starting in 1967. The first payload "consisted of nothing but rubber bands, big bands of rubber, tilted like this to give us a slat collimator with a one degree field of view." The collimators were not cameras but counters like Geiger tubes. There were also two World War 2 aircraft gun cameras along side of the detectors. Each of these flights only lasted 5 minutes and most of the problems were related to getting the rockets to aim them to a target to study.

Bradt noted that "we didn't know that it rained in the desert." and that they once left the door open to the instrument payload. The rain had poured in there down the launch rails. "They were tearing it to pieces, cleaning it all up. It was a mess."

They were able to launch and gather data from that and other sounding rocket flights to allow identification of 5 x-

ray sources. Unfortunately all of the sources were in the galactic plane and largely obscured. Bradt noted that " We picked the wrong ones in a way."

In 1975, he then became a co-investigator for the SAS-3 satellite, that was an MIT follow-up mission for the 1970 Uhuru x-ray satellite. This payload had the wire grid modulation collimators which allowed arc minute positions to be determined. This satellite provided important data about rapid x-ray bursters. They were thought to be thermonuclear explosions of matter that is piling up on the accretion disk of a neutron star as it spirals in.

A larger x-ray satellite called High-Energy Astronomy Observatory (HEAO-1) followed in 1977. This was a collaboration with Herbert Gursky of the Smithsonian Astrophysical Observatory (SAO), University of San Diego and MIT. Dr. Bradt stated that " The idea of this satellite was very simple and dumb. It's going to rotate and scan the sky." The satellite was able to catalog over a thousand x-ray sources.

The "biggie" is the Rossi X-ray Timing Explorer, which has been orbit for 11 years and has been given a 2-year extension from NASA. The idea of this satellite was to have a low sensitivity detector scan the entire sky once every hour and if you see something interesting, maneuver the craft to look at the object. When Gamma Ray bursts were occurring, they were able to observe them. Micro quasars that send out superluminal jets and which have a strange oscillating pattern was also a target for investigation.

A short mention was made of the design of the Chandra telescope and MIT's contribution with a grating spectrometer on it.

The last image was a movie showing the changing intensities of the x-rays from the all sky monitor. The movie was a few minutes in length and presented 4 days each second. In it was seen some of the landmark sources such as Sco X-1, the Crab pulsar and Cygnus X-1. Some of the other interesting sources such as micro quasars, bursting pulsars, x-ray bursters and black hole novae were pointed out.

Dr. Bradt concluded with a comment that "any of you could have found the Crab Pulsar and all it took was remembering freshman Physics and angular momentum...When the skater pulls her arms in she spins faster. If a star is going to collapse to a neutron star what do you think is going to happen?... A really good scientist is bicycling home, he's not thinking how to get the rocket off the ground...he's thinking, how might the neutron star be discovered. What haven't people thought of? What's the energy source in the Crab Nebula? ... When you are bicycling home and thinking, you should be mulling about those things. You might say, timing, timing, ding-dong. As it was, it was Jocelyn Bell Burnell, in the fields of England that found the first Pulsar."

The Secretary, Treasurers, Membership and Clubhouse reports were given.

Virginia announced that Bob Gendler will be talking about astrophotography on the following week, Oct. 19th, at the public observing night at the CfA.

Clubhouse Report . . .

Nov 16 - ASP Meeting event: The ATMoB will be hosting a group of formal and informal educators. There will be a tour of MIT Haystack and from there to the clubhouse. We'll hopefully do some solar observing. Mike Hill will open up the C-14. Dave Siegrist will demonstrate mirror grinding and Virginia will be doing a couple of activities on distance and scale and shadows.

Bernie Volz and Peter Richardson gave a tutorial and answered questions about the club web site.

Dick Koolish and Ken Launie gave a report on their trip to the Antique telescope meeting in Fort Davis, Texas. They showed a few images from their trip. Some the photos included the Rattlesnake museum, the 85 ft radio dish at Ft Davis, the McDonald observatory telescope complex, the National solar observatory, Apachi Point Observatory and the local wildlife.

Mario announced that the eclipse trip to China in 2009 is completely filled but there is a waiting list for those that are interested.

There is a Nelpac meeting on November 5 at the CfA at 5:00 p.m. The Dark Sky Bill died on the third reading of the MA house. Gloucester may have a light bill after the lawyers finish their review. He thanked Benie Kosicki for his help. Mario was asking for volunteers that live near Gloucester for help on a presentation on November 28.

Dick Koolish reminded everyone that on November 8th that there is a transit of Mercury across the Sun. "It starts at 2:00 EST in the afternoon and is only half done at sunset. So you need a spot with a good southwestern horizon". Virginia noted that there would be a pod cast if people couldn't make it.

Paul Valleli reported on the mirrors that he will be picking up from Axis technologies. He noted that there are hundreds of small lenses that have to be picked up. He also rounded up some large blanks, a couple of 18's, a 16 BK7 and a mirror for an 8" Ritchie Chretien. The biggest problem is deciding how to split the donations between the Springfield Telescope Makers and ATMoB. The executive board will have to decide how to sell the equipment.

The IDA sponsored a display at the annual convention of the National Electrical Contractors Association. Bernie and Paul were there for 6 hours on Sunday.

–*Al Takeda, Secretary*–

A total of 16 members and friends showed up to help out at the October work party. Projects included; Digging 4 postholes for the preparation of the foundation for the clamshell observatory. Mowing the entire lawn around the clubhouse, barn and observing field. Storm windows were added to the second floor of the clubhouse, and the East and South sides are nearly complete. Scraping and painting continued on the barn and clubhouse.

In addition, the ever-expanding eyepiece collection at the clubhouse was sorted and each one was individually engraved. We now have four dedicated sets of eyepieces for the telescopes at the clubhouse for use by our members.

We would like to extend our thanks to the following members and friends of the ATMOb who were able to help out during both the September and October work parties:

Anna Hillier, Paul Cicchetti, Junich Sano, John Reed, John Maher, Tom Wolf, Eric Johansson, Susan Mudgett, Bruce Gerhard, Dave Prowten, Dave Siegrist, John Blomquist, Bruce Berger, Steve Clougherty, Greg Chas, Penny Chase. Mike Hill, Sai Vallabla Eileen Myers, Virginia Renehan, Karen Swedlow, Art Swedlow, Al Takeda .

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

Clubhouse Saturday Schedule

Nov. 4	Closed -Work Party	
Nov. 11	Eric Johansson	Mike Hill
Nov. 18	Art Swedlow	Sai Vallabha
Nov. 25	Hopkinson	Suslowicz
Dec. 2	Closed -Work Party	
Dec. 9	Dave Siegrist	John Small

Membership Report . . .

We have two new members this month;

Daniel Noren from Wakefield
Jeffery Edmonds from Newton

Members who do not have an email address will be able to log on to the ATMoB website. I can install a user name of your choosing. When you first log in with this user name you will be given a password. You can modify this password later if you wish. Call me at 617-876-0110 to tell me what you would like for a user name.

If anyone is unsure when they last renewed their membership, that information is now available on the ATMoB web site -- but you need to logon to view it.

–*Dan Winchell, Membership Secretary*–

- Book Review 1 . . .

Congratulations on the new Carus Publication, "Star Gazing with Jack Horkheimer: Cosmic Comics". This book contains over 50 astronomical subjects in a cartoon-style format. Many times, newcomers to astronomy will struggle to learn many of its difficult-to-understand topics. This book offers a "Da Vinci Code - type" key that unlocks the cosmos to the reader! I rate this book, five stars! Carus Publishing has performed a stellar achievement highlighting the secrets of the universe quickly to astronomy students worldwide! For all ATMoB members, family, friends and students of ATMoB star parties, the book may be ordered by calling 800-821-0115 or visit www.cobblestonepub.com. I have negotiated a 25% discount off the list price. Use the code SF3 when ordering.

- *Charlie McDonald* -

Book Review 2 . . .

Author and dark-sky advocate Bob Crelin's book There Once was a Sky Full of Stars gives both children and adults an inspirational story of how we can take back the sky and the starry nights in our light-polluted cities and towns. The poetry is engaging and lyrical, a story that is easy to read aloud. The illustrations by Amie Ziner lovingly present the author's inspiring views of the universe with beautiful renderings of night sky wonders. Ziner's drawings of multi-generational and multi-ethnic characters on each page also enhance the story and make it accessible to all.

In addition to showing how the night skies have faded due to light pollution, Crelin's book shows how the natural world is also adversely affected by light pollution. Trees and plants as well as night-time animals are regulated by the normal progression from daytime to nighttime and the changes of light through the changes in seasons, and as such may suffer when their internal clocks are thrown off by too much light.

Another important message of this book is a grass-roots approach to taking back the night skies. Families can install downward facing light fixtures in their neighborhoods to improve lighting coverage and allow the starry skies to shine through once again. Towns and cities can change their approach to lighting public areas to also improve coverage and reduce costs. Included after the story are talking points that can be used to teach additional concepts to readers young and old.

The best childrens' books are those that entertain, teach, and inspire both young and old through their images and text. Bob Crelin's book There Once was a Sky Full of Stars certainly does that and more and is a worthy addition to any young reader's library.

- *Nanette Benoit* -

Plaistow Star Party . . .

The Plaistow NH Pollard School Star Party went off on-schedule Friday Sept 29. Despite iffy weather ~ 250 people attended. In addition to the telescopes we had a bonfire, hayrides and a presentation on spacecraft. It's neat doing a star party at a farm:

- A) Its darker
- B) You can do things like bonfires
- C) You just feel closer to nature
- D) A commercial greenhouse can be converted to a theater

ATMoB members helping to make this event a success were Peter Bealo – organizer
Bruce Berger, John Blunquest, Dave Wade, Neil Rabideau, Ed Los, Davis Wilbur, Brewster Lamachia, Kevin McCarthy

Great time was had by all...

- *Peter Bealo* -



Ana Bealo looking thru brother Nick's home made scope

Turkish ATMs Images:

Due to email issues, Haldun I. Menali's images of the Turkish ATMs were not included with his article last month. Please refer to the October Star Fields for his write-up of this group's accomplishments.



Plaistow NH Pollard School Star Party



Plaistow Star Party - John Blomquist's scope





Update on the ATMoB Web Site

The new web site (<http://atmob.org>) has been operational now since June. While it is getting good use, there are many members that have yet to log in and use the site. You may have checked out the public site where there's plenty of information, but there's much more available you if you log in (as an example, just before the October meeting there was 1 public event and 12 events if you were logged in). And, the site will be even more useful to all members if you include details about yourself (such as the telescopes you own). Interested in a telescope? See which members have that telescope and send them an email to get their opinion.

If you forgot your password, you can use the "Forgotten your logon details" facility on the sign in page (click on "Logon" in the upper right hand corner of any page). Just enter your email address and you should be sent a message with your password. Note that your "User Name" is the email address you last gave the club's membership secretary. If all else fails, just send us an email (admin@atmob.org) and we'll try to get you your details.

The best way to see what's available is to log in to the site and explore it! We continue to work on improving the site. In particular, Peter Richardson is in the process of developing additional pages to allow you to check your membership status, to update your membership details, and even renew your membership (you'll still have to send in just a check to complete the process). This will allow you to confirm and correct your membership details and will reduce errors and duplication of work.

Members wishing to continue to use the existing paper method may continue to do so. And, if you haven't yet renewed your membership, it is overdue (don't wait for the new pages). The paper membership renewal form is at available at the site (go to "Library", and then "Forms").

We're always looking for more content and astro or club event photos (you can post photos to the various galleries!). If you supply the material, we can work with you to format it. And, if you're interested in joining the Web Committee, please contact me (volz@metrocast.net) or the committee (admin@atmob.org). You can also share your ideas using the Message Boards (in particular the "Web Site Ideas" and "Web Site Issues" message boards under "Members", then "Message Boards", and finally "Other").

The current committee members are Bruce Berger, Brewster LaMacchia, Peter Richardson, and myself. A special thanks to Peter, who has done and continues to do almost all of the programming.

- *Bernie Volz*

Astro Trivia...

THE FIRST KNOWN STARLESS GALAXY, VIRGO HI21, was discovered in 2004 by a radio telescope at the Jodrell Bank Observatory in England. It is a huge rotating disk of hydrogen. When the rotational speed was measured, the pancake-shaped entity showed itself to be incredibly massive--about 100 billion times the Sun's mass. Astronomers have concluded that more than 99.9% of the body is composed of unseen material.

PENDULUM by Amir D. Aczel is a book well worth reading. It chronicles how Foucault designed and used a pendulum to prove that the Earth rotates. The first public pendulum demonstration by Foucault was on February 3, 1851. On the day before, Foucault sent this invitation to all the known scientists in Paris: "You are invited to come to see the Earth turn, tomorrow, from three to five, at Meridian Hall of the Paris Observatory."

NEWTON'S LAWS IN PLAIN ENGLISH. Another simple explanation I have run across is in the book, "Five Equations That Changed the World" by Michael Guillen, Hyperion, 1995. It is the simple statement of Newton's three laws of motion.

1. In a world where there are no forces to push or pull things, an object that is not moving will remain motionless forever, whereas an object that is moving will keep moving forever, along a straight line and at constant speed.

2. In a world where there are forces to push or pull things, an object bullied by a force will always either accelerate or decelerate, depending upon how the force is applied.

3. If the two objects bump into each other, each will feel the force of the collision equally, but in opposite directions.

- *Ted Poulos* -

Newsletter Corrections . . .

Oct. 06: United States 6,000 (referring to students) should have read 60,000

**December *Star Fields* deadline
Friday, Dec. 1st**

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

POSTMASTER NOTE: First Class Postage Mailed November 3rd, 2006

Amateur Telescope Makers of Boston, Inc.
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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 Standard Time (EST) from Universal Time (UT) subtract 5 from UT.

Nov. 5 Full Moon
Nov. 8 Mercury Transits the Sun – 19:12:04 hrs. UT (2:12 p.m. EST)
Nov. 12 Last Quarter Moon
Nov. 17 Leonid Meteor Shower Peaks
Nov. 20 New Moon
Nov. 28 First Quarter Moon
Dec. 4 Moon 0.6 deg. N. of Pleiades – 03 hrs. UT (10 p.m. EST)
Dec. 5 Full Moon