ATM BOSTON inc.

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. 18, No. 1 January 2006

This Month's Meeting…

Thursday, January 12th, 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 be on Total Solar Eclipses in preparation for the March 29th Eclipse. Dennis Di Cicco, Edwin Aquirre, and Imelda Joson from Sky & Telescope will speak on imaging techniques, especially using digital technology, and their past experiences observing Eclipses. And, Mario Motta and Bernie Volz will take you through an Eclipse, highlighting the various events and what to look for using photographs from past eclipses and with information specific to the March 29th Eclipse. If any other members wish to participate, please contact Bernie (volz@cisco.com).

Please join us for a pre-meeting dinner at 5:45 PM (seating at 6:00 PM) at the Changsho Restaurant located at 1712 Mass Ave. in our fair city, Cambridge.

President's Message…

Happy New Year!

I hope everyone had a pleasant holiday.

Starting in this issue and for the next two, the officers of the ATMoB will highlight the duties their position entails (this is the practical version of what's in the Bylaws, see http://www.atmob.org/Bylaws.pdf). I hope this information will interest a few to run for an office in the future (and hopefully it won't scare anyone off!). While I can't speak for all positions, the ones I've held (President, Vice President, Treasurer) have not required a significant investment in time and effort. The first year is a bit more work as it takes time to learn what's required, but the previous office holders have provided great support.

We will be holding an Executive Board meeting on Thursday, January 19th, at 7:30PM at the Clubhouse. If anyone has any issues for the Board, please get in touch with me. One of the key issues to be discussed is where to mount the GT1100 and C-14.

Speaking of the C-14, Bruce Berger and Mike Hill (and I) mounted it on Bruce's pier at his house and looked through it. While the moon was almost full that night, what we saw was rather good. Though we did notice what looked to be wipe marks and a film on the primary (and the scope was slightly out of collimation). Bruce then had Paul Valleli over and took the scope apart and cleaned it. The wipe marks are still there and while they may slightly degrade the image, it is not worth correcting at this time (to recoat the mirror will be rather expensive). Paul feels that "the scatter is miniscule compared to alignment and flexure issues." Bruce and Mike looked through the scope again and collimated it. And, reported rather nice views! Thanks to Bruce, Paul, and Mike for working on the scope.

As a reminder as we start the new year, with respect to club equipment and the clubhouse itself, please make sure to discuss any work or projects with the Clubhouse Committee chairs before proceeding. And, if you discuss it with one of the chairs, make sure that someone takes action to inform the other chairs. While we want to encourage volunteerism and want to minimize obstacles, it is important that activities are properly coordinated.

Again, the best in the new year to all!

Bernie Volz

December Meeting Minutes. . .

The 776th meeting of the Amateur Telescope Makers of Boston began with the traditional reading by long time member Tal Mentall of the poems "The Night Before Christmas" and the more comical "Story of Sam McGee". An excellent performance as usual. Our main speakers tonight were Bob Simcoe and Ed Los who spoke to us about the progress made so far with the construction of a high speed digitizer to be used to archive the approximately half million photographic plates that are part of the Harvard College Plate collection, some of which date back almost one hundred years. The project started in July 2004 after the NSF awarded a feasibility study grant. After that, the work began to design and build a very accurate scanning mechanism and camera and to write the control software. Bob enlisted the help of five students from WPI to work on the design of the plate holding table and scanning mechanism. This was done as their senior project so served both groups well. A local company, the name of which Bob never mentioned, generously donated the CCD camera which contains a 4K x 4K CCD chip with 11 micron pixels. The CCD chip can be read out very fast as well which was a very important design criterion. The lens is a double telecentric lens purchased from Sill Optics in Germany and the Lighting to illuminate the plates is a set of four red LED arrays. The design constraints on the hardware had as much to do with location as with function because the entire setup, which includes a large granite surface plate and supporting mechanism, had to fit into the HCO basement via a 4x4 window and then in-between concrete support poles spaced every 56" in all directions. All went well however and by August 2005 initial testing had begun. In early 2005 Ed Los volunteered his services to write the camera control software as well as software for table positioning, camera focusing and data processing. All data is written to FITS formatted files and uses a product named Mosaic Tool to combine multiple exposures made of one plate into a single file. Two utilities have also been created to perform astrometry and photometry processing. Initial verification testing included testing the A/D linearity of the CCD data processor, flat field characterization, light scatter of the lens system and positioning accuracy. All is going well and the first light image of the entire system was made of a plate taken on December 4th 1899 of M13. The first official **full plate scan** was of a plate taken on July 8th 1899 from Arequipa, Peru of the Rho Ophiuchus region. Ed asked anyone if they recognized the region before he told us what is was and one member, Dave Aucoin, was able to identify it. Congratulations to Dave for his expert knowledge of the sky. The region includes a number of globular star clusters including M80. George Champine followed up with a summary of the work being done to digitally archive the many logbooks that accompany the photographic plates. There are 1200 logbooks to process. The plate scanning project has gone well and is now ready for additional funding to do the actual work which may take from 5 to 7 years. Following the main talk Bob Naeye gave us a short presentation on the latest planetary probes with the usual great pictures that he has first hand access to. This included images of Saturns Moons, Asteroid Hayabusa and the surface of Mars. The business meeting followed with standard reports by executive board and committee members. Virginia Renehan announced an upcoming star party at the Cfa and informed us that a $200 donation by the Locke Middle school to the ATMoB as thanks for their Star Party was being put back into the school in the form of a small telescope. Virginia also spoke of some good progress towards a light pollution ordinance in her home town of Gloucester, MA. Eileen Myers announced the New Years Eve party and Gary Jacobson announced the availability of the RASC handbook for $18 dollars a copy. Bernie announced the donations of a Celestron 14" telescope and accompanying GT1100 mount by club member Dr. Fred Ward. The board will be taking up the task of where to mount this at the next board meeting.

– Michael Hill -

Treasurer's Report...

Treasurer's Report

As of December 29, 2005

Checking account balance:	$ 4,546.43
Money market savings account balance:	$43,653.31

Revenues:	$1,304.73
Expenses:	804.54
Net increase:	$ 500.19

	DECEMBER CONTRIBUTIONS	BALANCE
General Donation Fund	$199.55	$2,340.20
Clubhouse Donation Fund	$28.00	$1,836.50
Land Fund		$3,326.66

- Gary Jacobson, ATMoB Treasurer-

Membership Report…

This month we have 3 new members:

JIM BENCIVENGA from Ashland, MA
JOHN BULMER from Waltham, MA
JOHN BUONOMO from Norh Billerica, MA

- DanWinchell-

Clubhouse Saturday Schedule

The clubhouse Schedule for 2006 has not been completed yet but rest assured that someone will be on duty on Saturday evenings up at the clubhouse. If you are unsure call the clubhouse before coming up.

ATMoB Member Completes Mirror

I became interested in making a telescope when I was in my senior year at Chelmsford High School. I wasn't sure how to go about doing this other than through some instructions that I found on NASA's website. My mom, a science teacher at the Butler Middle School, worked with Mike Capella who is a member of the Amateur Telescope Makers of Boston. It was Mike who suggested that I come up to the ATMoB to begin working on a mirror for the telescope that I wanted to make. I began making my six inch mirror at the end of January 2005 with instruction from Ed Los, another member of the ATMoB. That August I went away to school at the University of Rochester with my mirror nearly spherical and polished out , but still incomplete. When I got there I emailed a number of optics professors including Prof. Steven Jacobs. I was able to meet with Prof. Jacobs and soon after he not only offered me the opportunity to finish my mirror, but a job at the Laboratory for Laser Energetics (LLE) as well. Once at the Laser Lab I was able to measure the exact surface geography using a Growth Potential Inferometer [GPI] and a Form TalySurf. The GPI uses the interference of light to determine the shape while the Form TalySurf uses a surface probe. Alexander Maltsev, a senior manufacturing engineer, helped me to finish polishing out my mirror. Before it was finished it was necessary to flatten out the bottom of the mirror and even out the side. I performed this with engineers Ed Fess and Henry Romanofsky. To do this we used a bronze bonded diamond ring tool on a OptiPro 150 CNC generator. This was done so that the mirror could fit squarely on the MRF machine. To finish my mirror we used Magnetorheological Finishing (MRF) which is a technology that was developed at the University of Rochester within the past ten years. MRF is a computer controlled polishing technique. An equation for the specific asphere that is desired is put into the MRF machine, as is the current profile which was determined by the GPI and the removal rate of the specific type Pyrex on the part. The machine will then be able to calculate the motion needed to remove the given amount of material to produce the desired shape. Over winter break I returned to Massachusetts and brought my mirror to the ATMoB so that I could look at it using the Foucault tester. It was concluded that my mirror was done and correct within 1/23 of a wavelength of light. Now I plan to have my dad have it aluminized at MIT Lincoln Labs where he works. As for the base of the Dobsonian, I was able to get in touch with Prof. William Leonard from The Rochester Institute of Technology. He is putting together a team of students majoring in Mechanical Engineering. They are planning on making me a lightweight open mounting that is able to be disassembled easily so that I can take it camping. It is scheduled to be completed by May 2006.

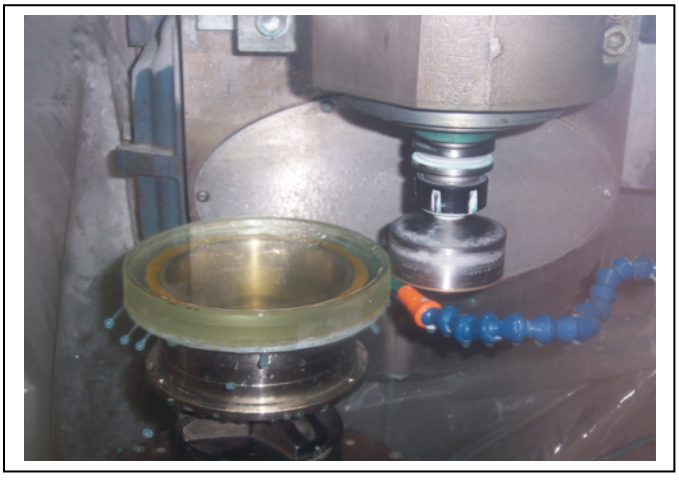
Rebecca Murphy - December 26, 2005

For more information:

MRF:
http://www.opticsexcellence.org/SJ_TeamSite/RS_mrf.html

GPI:
http://zygo.com/

Form TalySurf:
http://www.taylor-hobson.com/talysurfpgi.htm



Edging the Mirror

Rebecca Setting in the Polishing Parameters

President's Duties (written by Bernie Volz)

- Following the June elections, file an updated "certificate of change of directors or officers" with the state if needed
- Find speakers for the monthly meetings.

  I do this twice a year, once in the summer for the meetings through December and again in December for the January to June meetings. As I read articles in Sky & Telescope and in other places, if a person in our area is mentioned, I record their name and do some research (using the Web) to see if it is worth having that person speak. Members may also mention people to consider contacting, and occasionally a person emails asking to speak. I then have a good pool of names to follow up on. I've mostly contacted potential speakers via email and usually have excellent response rates. Finding a mutually agreeable date is often the biggest challenge. I don't just focus on professional astronomers; consider members and amateurs for either a members' night or as the featured speaker.
- Write monthly President's message for Star Fields and contact the speaker to provide the talk's title and abstract and the speaker's bio.
- Organize and prepare the monthly meeting agenda. The bylaws dictate much of the format, but for content and special items, Star Fields can be invaluable. Assure refreshments will be handled by someone and remind that person several days before the meeting. And, remind the speaker! The April meeting requires additional preparation - the President must propose 6 candidates for the nominating committee.
- Conduct the monthly meeting. And attend the pre-meeting dinner especially if the speaker will be there or arrange another officer to handle the dinner.
- Assure that state filings are done. Usually the Treasurer handles the Annual report (due on or before November 1st), but it is signed by the President.
- Schedule Executive Board meetings and develop the agenda. Board meetings must be scheduled and announced to the membership and officers per the bylaws.
- Answer questions from and give guidance to other officers related to their duties and responsibilities as needed.
- Answer queries for information from members and the public.
- Every 5 years the clubhouse lease must be renewed. Contact MIT to initiate process and follow it through.
- And, of course there are miscellaneous issues that come up from time to time.

Vice President's Duties

The Vice President of the club shall assist the president and take over his/her duties where necessary. It is assumed that the person taking this post has committed to go on as president upon the next election cycle if so elected and as such this position can be considered to be one of training for that post.

For Sale

Meade B&W planetary imaging camera, 9V battery, NTSC (composite video) output $25

Logitech Webcam, ball style, USB1.1 output. Camera control software. $30

Scopetronix Afocal lens adapter for 58mm digital cameras such as Sony DSC series. Also works as low power, wide field eyepiece. Approx. 75mm (3-inch) F.L. Like new. orig. $249, asking $150.
Will bring all to Jan. meeting.

Paul Valleli
Phone: 781-272-8946
email: valleli@rcn.com

RASC Handbooks

There are still a few 2006 RASC Handbooks left. If anyone is interested, they are available at a cost of $18 each.

Bernie Volz

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February *Star Fields* deadline
Saturday, January 28th

Email articles to Mike Hill
at noatak@aol.com

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POSTMASTER NOTE: First Class Postage Mailed January 6, 2006

Amateur Telescope Makers of Boston, Inc.
c/o Dan Winchell, Membership Secretary
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FIRST CLASS

EXECUTIVE BOARD 2005-2006

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VICE PRES:	Virgina Renehan	(978) 283-0862
SECRETARY:	Michael Hill	(508) 485-0230
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	Dave Prowten	(978) 369-1596
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	John Reed	(781) 861-8031
	Steve Clougherty	(781) 784-3024
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 (EST) from Universal Time (UT) subtract 5 from UT.
January 6 First Quarter Moon
January 14 Full Moon
January 22 Last Quarter Moon
January 27 Saturn at Opposition
January 29 New Moon