



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

Vol. 15, No. 6 June 2004

This Month's Meeting...

Thursday, June 10th, 2004 at 8:00 PM

Phillips Auditorium
Harvard-Smithsonian Center for Astrophysics

THIS MONTH'S SPEAKER will be Larry Candell from MIT Lincoln Laboratory. The title of Larry's talk will be "The Mars Laser Communications Demonstration Program".

For those of you who have seen or have read about the testing of the 14" Celestron telescope set up at the clubhouse by LL, this is the talk that will provide an overview of their new project designed to provide high bandwidth optical communications from Mars to Earth by using a modulated laser source. Their goal is to provide between 1 and 30 Megabits per second by using about 1 photon per bit. Virtually every aspect of the project is challenging: from generating the laser power, to pointing it to the earth, to building efficient receivers of the light, and rejecting the bright sky background. Particular attention will be given to their novel ground receiver system, since it shares many challenges amateur astronomers routinely face.

Larry is the leader of the Advanced Space Systems and Concepts group at MIT Lincoln Laboratory, and the associate project manager for the Mars Laser Communications Demonstration Project. His expertise and experience is in the design and building of advanced electro-optical systems, signal processing, and communications systems. When not spending time with his wife and two kids, he occasionally gets to observe in the bright skies of Arlington, MA. Larry has a Bachelors and Master Degree in EE from MIT.

Please join our speaker and his wife 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...

I have had a wonderful two years serving as President of the ATMob. During these years it has been my privilege to be part of the dedication of the Ed Knight Observatory, the 70th Anniversary of the ATMob / 80th Anniversary of the Bond Astronomical Club, and the long-awaited dedication of the 20-inch mirror and telescope to Harlow Shapley. We also had our first Astronomy Day in years at a new venue - the Clay Center Observatory in Brookline. I have been fortunate to have an excellent Executive Board. Thank you to Mike Hill for taking such fine minutes at all of our meetings. Your speaker summaries are always first rate. Thank you to Membership Secretary Shilpa Lawande and Treasurer Gary Jacobson for keeping our membership lists and financial records accurate and up-to-date. Thank you VP Bruce Berger for your assistance with telescope installations at the clubhouse. Thank you Members-at-Large Dan Feldkhun and Lew Gramer, and Past-Presidents and club advisors Bob Collara, Joseph Rothchild, and Peter Bealo for your ideas and input. I cannot thank Club Star Party Coordinator Charlie McDonald and Star Party News Editor Virginia Renehan enough for arranging for telescopes and speakers for star parties. Annual attendance has grown into the thousands. Thank you Clubhouse Directors Paul Cicchetti, John Reed, Steve Clougherty and the entire Clubhouse Committee for the continuous improvements and maintenance of our approximately 200-year-old clubhouse, and for hosting Saturday night observing at the clubhouse. I want to thank Dave Siegrist, Mike Hill, Ed Los, and everyone who helps make Thursday mirror making sessions at the clubhouse so successful. I very much enjoyed starting monthly meetings by reading sections of the club history assembled by Club Historian Anna Hillier. I am also pleased that the number of active women members in our club has grown, and the number of younger members has increased as well. I have enjoyed coordinating many club activities and do hope to continue. As for now, I'll be out observing as much as I can.

Some reminders. StarConn at Wesleyan University is Saturday, June 5th. There are several members who will be attending, so if you need a ride send me an email. Also the Stellafane registration mailing has already gone out. If you haven't received it yet, you can register online via PayPal, or you can send a SASE (#10 regular envelope with 37 cent stamp) to: Stellafane Convention, PO Box 50, Belmont, MA 02478, and after receiving the registration mailing you can register by mail, or you can register at the convention (but that takes up time and makes for long lines). We have also been invited to Venus transit viewing events held by the CfA, by the Collection of Historical Scientific Instruments of Harvard University at the Science Center at 1 Oxford St in Cambridge (using modern and antique telescopes), and at the Oak Ridge Observatory in Harvard, MA. Bring your solar viewing scope to share a view with the public. Clear skies for everyone on June 8th.

-Eileen Myers-

May Meeting Minutes. . .

The 769th meeting of the Amateur Telescope Makers of Boston began with a thoughtful presentation of flowers to Eileen from Anna Hillier "For all that she has done for the past two years". A very nice gesture indeed and representative of the sentiment felt by all of us. As a prelude to the topic of tonight's speaker, Mario Motta spoke about an historical Gregorian telescope donated to HCO by a Dr. Augustus Holyoke, the founder of the 200 year old Mass Medical Society and amateur astronomer. This telescope was used to view the 1769 transit of Venus here at Harvard, and subsequently packed away and forgotten until Mario in his research of the MMS revealed its presence.

The speaker tonight, club Member Rich Nugent, was eloquently introduced by Charlie McDonald in part with thanks for all he has done for his leadership and mentoring of others in pursuit of promoting the many star parties that the club provides for the public.

Rich's talk was about the transits of Venus and more specifically the upcoming event of June 8th. With his usual unbridled enthusiasm Rich gave us a little history of the concept of planetary transits beginning with Keplers Rudolphine Tables which were used to predict the transits of the planets Venus and Mercury across the disk of the sun. It turns out that Mercury has a transit about 13 times a century but Venus only two times a century. The transits follow an eight-year cycle; that is they come in pairs separated by eight years. After that one has to wait another century to see this event So viewing one is a twice in a lifetime experience at best. Due to the details of planetary orbits, they always occur in June or December. There is no record of the 1631 transit and the accompanying 1639 event was only recorded by one English observer - William Crabtree. Following this event Edmund Halley figured a way to predict the distance to the sun, based on triangulation, using a transit event. Given that knowing the distance to the sun was important to astronomers, the next round of Venus transits, in 1761 and 1769 were much more widely observed. In fact many astronomers went to monumental lengths to be at the right place at the right time to see these events. The key was to accurately time the 2nd and 3rd contact events and compare times against other observations with observers separated widely across the globe. Due to an effect known as the black-drop effect whereby the image of Venus appears to be stretched towards the limb of the sun just before contact, the timings were very inaccurate and the desired solar distance estimate therefore not very meaningful. An attempt was again made with the 1874/1882 events but accuracy was still not good enough. New methods of the determination of the solar distance were subsequently developed and the transits of Venus shifted from being scientifically important to just wonderful events to see and experience. So here we are in the next cycle in 2004/2012. Although Rich has seen transits of Mercury in 1970 and 1973 it is this, the transit of Venus that he is so eagerly awaiting to see. If you weren't

enthusiastic about it before his talk you most probably were afterwards. We can only hope for good weather of course but that is the case with any astronomical event, isn't it.

Tonight's talk was followed with an equally compelling update by Bob Naeye on the Mars rovers, the most notable news being that these engineering marvels may last up to two years; well beyond their expected lifetime. Bob then transitioned our senses to the next big planetary event, the Saturn Cassini mission due to arrive July 1st. We saw some very impressive pictures of Jupiter, Saturn and Titan.

The business meeting followed with the standard reports by board members and committee members A barbecue on May 29th was announced which will include the dedication of the 20" telescope in the observatory. Mario Motta announced the nominating committee results. Eileen announced a board meeting to be held on May 17th.

Following were presentations of pictures by Mario Motta of the progress of his new observatory, astronomy pictures by John Reed from his trip to Missouri and a short presentation by Bruce Berger of the techniques of image processing using Registax.

-Michael Hill-

Treasurer's Report...

For the end of the fiscal year I have generated a very detailed summary of the club finances for the past year. It is too large to fit into the hardcopy of the newsletter. It is therefore included as an addendum to the email versions of the newsletter. If you do not get the email version, I will have copies of this report at the next meeting. - *Gary Jacobson, Treasurer-*

Membership Report...

Please welcome our new members:

KIRKE CURTIS Brookline, MA
DONALD WARE Hollis, NH
ADRIANO ALENCAR Cambridge, MA

The current ATMob membership count is 375.

- Shilpa Lawande, Membership Secretary -

Clubhouse Report

During the last work party we removed the snow fence and prep'ed the surrounding ground by filling in the ruts caused by setting over the area where the conduits were installed. The furnace was serviced and skirt panels were added to the observatory to prevent someone from catching their fingers between the wheels and rails. Also, work continued on trimming. The next work party will be on June 12 (originally scheduled for June 5, but moved because of Starconn).

Clubhouse Saturday Schedule

June 5	John Small	Gary Walker
June 12	Paul Cicchetti	John Reed
June 19	Ed Budreau	David Richardson
June 26	Bruce Berger	Mike Hill
July 3	Phil Rounsville	Dave Prowten
July 8	Glenn Meurer	Art Swedlow

Texas Star Party Report

"During May's New Moon, ATMob members Barrie Sawyer, Steve Clougherty, and Lew Gramer joined colleagues from the NSAAC (Kevin Ackert, along with Barrie and Lew) and SSAS (Louis Gentile and Don Greeley) in an 11 day odyssey to the Texas Star Party in the high desert of West Texas. We had 5 out of 6 clear nights at the Prude Ranch - and a spectacular mountain lightning storm to keep us from being bored on that one cloudy night! We observed the NEAT comet in many scopes - it was neat! - plus lots of obscure galaxy clusters in the 500Mly to 1Gly range, great sweeping spiral arms in M101 and M51, and an eyepiece overflowing with COLORED stars from globular cluster Omega Centauri. These latter feats, among many others, were achieved at the eyepieces of Kevin's 12" f/4.8, Louis' 18" f/4.5, and Godzilla - the 36" f/5 scope that Steve, Kevin and Lew had faithfully transported half-way across the Continent... 2400 miles in 42 hours, each way! Among our daytime side trips - a visit by some of us to Carlsbad Caverns in NM, a funny walk around Roswell NM, and a private tour (with Wil Tirion in our midst) of the 362", 107" and 82" telescopes at McDonald Observatory. All had the time of their lives - and now we're happy to be back! Clear skies, Lew Gramer"

Star Party Thank You's . . .

Chelmsford Community Star Party

The Chelmsford Community Star Party was a resounding success, with hazy clouds and a sometimes gusty wind doing nothing to cloud the enthusiasm of the crowds. The library personnel counted 135 cars at the peak which probably translates into about 250+ people. The Murphy Soccer field is an almost ideal site, providing low trees to block neighborhood lights and a 360 degree view.

The only disappointment was clouds that hung below Procyon for most of the night, blocking any potential views of comet Neat [C/2001 Q4]. But nobody was disappointed to see the shadow transit on Jupiter, the bright crescent of Venus or the tipped rings of Saturn, which held up quite well at 360X through a 4" refractor.

Special thanks go to ATMob members:

Thomas & Caroline Luminello, Leon & Michelle Lupien, Chuck Evans, Gary Jacobson, John Blomquist, Bob Naeye, Tom Bergman, Al Takeda, Scott Romanowski, David Snay, Jack Drobot, Dave Wallace, David Ronnow & Gay Rinker, Brian Maerz

Also to Alan MacRobert and Kelly Beatty from S&T, and Kathy Hicks and Nancy from the Chelmsford Library.

-Bruce Berger-

Bridge School Planet Party a success!

After two weather delays the Planet Party at the Bridge School in Lexington enjoyed clear skies Wednesday, April 28. Over 200 kids, parents, and teachers were there from elementary schools throughout Lexington. They were treated to wonderful views of Venus, Jupiter, Saturn, and the Moon. Fran Ludwig, Elementary Curriculum Specialist in Science, sends her thanks to all the volunteers. They include Paul Duval, Bruce Tinkler, Christine Moulen, Joseph Lehar, and Deyne Meadow. Our thanks also to those who offered their services on other evenings but could not be there Wednesday.

-Peter and Kathy Burns-

Dedication of 20" Telescope

The long awaited dedication ceremony for the ATMoB 20" reflector took place on Saturday June 29th and was the highlight of this year's first club picnic. It was a beautiful day for the event and was attended by about 40 members. Eileen Myers first began the ceremony with the dedication of the telescope to Harlow Shapley, who was the director of Harvard College Observatory from 1921 to 1952 and who did much to further the success of the ATMoB. In 1937 he secured funds and provided the means to purchase the 20" pyrex blank from Corning Glass Works. Grinding commenced in 1938. John Reed followed with a great history of Harlow Shapley's life which included the many facets of his involvement in astronomy and with astronomers around the globe. He provided us all with a very interesting handout, copies of which will be available at the next meeting. Paul Valleli followed with a history of the telescope itself. It has been many years in the making. Many hands have pushed this glass around and many minds have thought about the telescope's design. The mirror has a loose association with the Palomar 200" mirror. Prior to making that mirror, a number of 20" test pours were made. Although ours isn't one of the original test blanks, the original mold used for these was later resurrected by Corning due to popular demand so a number of additional 20" blanks could be made, one of which is the one we now possess. The original design for the telescope was to be 1/10th scale model of the Palomar telescope since the mirror is an F/5 design, the same as that used for the 200" mirror. This design was later supplanted by a German Equatorial design, which never came to fruition. All the while, grinding and polishing continued through the years by members such as Chet Cooke, Clarence Blake, Ed Lucy, Jim Gagan, Al Pickard, James Baker, Paul Valleli, Ed Knight, and in its final figuring stages, Dennis DiCicco. The building of the telescope, commenced again in 1990 when Gary Walker decided to donate an old split ring mount that he no longer was using. This began the final stages of the construction of this telescope. Although it stopped again for a few years, about 2 years ago, once we had the Ed Knight observatory in our sights, Gary once again began the final work on the mount. He has been busy working on it since then and the longest running project of the ATMoB is now complete. Congratulations to all that worked on this newest addition to the clubs collection of working telescopes. Its namesake and benefactor, Harlow Shapley would be proud to see this mirror in its final configuration, peering to the nighttime sky and the heavens beyond. Thanks go to him and his inspiration to all those who knew him and those that have followed.

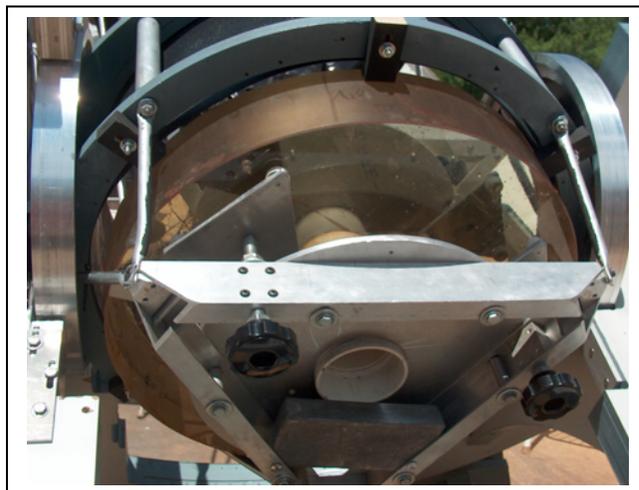
-Michael Hill-



Members Assemble for the Dedication Ceremony



The New ATMoB Harlow Shapley 20" Telescope



Close-up of the 20" Mirror

An Observing Log

When you're out observing, rather than just hopping from one object to the next, take some time to keep a log of what you see and the conditions under which you observed. The results over time will be a valuable resource for comparison and a chance to reminisce over past observing sessions. Here is a sample from my log. It always helps to develop a system or template so that you record the same conditions each time, followed by the description of the object you are looking at. **-Lew Gramer-**

LOG #1

Observer: Lew Gramer
Your skills: Intermediate (some years)
Date/time of observation: 19 June 2001 00:30 Local
Location of site: Myles Standish Forest, S Carver MA US
(Lat 42N, Elev
5m)
Site classification: Exurban
Sky darkness: 6.5 <Limiting magnitude>
Seeing: 6 <1-10 Seeing Scale (10 best)>
Moon presence: None - moon not in sky
Instrument: 8x25 handheld binoculars
Magnification: 8x
Filter(s): None.
Object(s): M39
Category: Open cluster.
Class: III 2 p/III 2 m
Constellation: Cyg
Data: mag 4.6 6.83m*; size 32'
Position: 2132.2 +4827
Description:
Taking a break from observation with Steve Clougherty's fine 17.5" dob, I swept the lovely Milky Way north of the Swan's head tonight with John Bishop's fine little 8x25 binoculars. Quite by accident, I happened on this little fuzzy, and realized it was M39... Rarely does M39 hold much interest for deep-sky observers as it is sparse and essentially lost in bright field stars. But tonight, with this tiny aperture, it stood out quite intriguingly in the field, showing a very nice (if tiny) assortment of resolved pinpoints, amid a clumpy haze of unresolved stars. Worth a look in small binoculars!

**July Star Fields deadline
Sunday, June 27th**

**Email articles to Mike Hill
at noatak@aol.com**

POSTMASTER NOTE: First Class Postage Mailed June 4th, 2004

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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.

June 3 Full Moon
June 8 Venus Transits the sun
June 9 Last Quarter Moon
June 17 New Moon
June 20 Summer begins
June 25 First Quarter Moon
June 26 Mercury and Saturn are 2.1 ° apart after sunset