



## 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. 29, No. 3 March 2017

### This Month's Meeting . . .

Thursday, March 9<sup>th</sup>, 2017 at 8:00 PM  
Phillips Auditorium

Harvard-Smithsonian Center for Astrophysics

Parking at the CfA is allowed for the duration of the meeting

### "Are We Special?" Engaging the Public with Astronomy and Nature Education



Image courtesy Appalachian Mountain Club and Carthage College

One of the reasons human culture thinks itself more important and more valuable than other life forms, and deserving of the use of any and all resources on Earth, is the disconnect between themselves and the greater Universe. Astronomy is the perfect mechanism to re-create that engagement, and to alter perspectives about mankind's place in the 'big picture', eliciting changes in attitudes and behaviors. Since 2012 a large-scale education and outreach effort based on astronomy has been conducted in a partnership between Carthage College and the Appalachian Mountain Club (AMC), through which more than 35,000 members of the public have received programming, and undergraduate science students and AMC permanent and

seasonal staff and volunteers have been trained in science communication skills. Dr. Douglas N. Arion will discuss the methods by which we engage the public, the "messaging" we aim to achieve, and fascinating examples of the linkages between astronomy science content and human existence.

Dr. Douglas Arion is Director of the Carthage Institute of Astronomy, Professor of Physics and Astronomy, and Donald D. Hedberg Distinguished Professor of Entrepreneurial Studies at Carthage College. He manages a partnership between Carthage and the Appalachian Mountain Club to offer astronomy programs and observing opportunities at AMC facilities and New Hampshire state parks, and operates telescopes at AMC's lodges and high mountain huts. He is a Lifetime member of the International Dark Sky Association, and serves on both the American Astronomical Society and International Astronomical Union commissions on dark skies preservation. For the International Year of Astronomy-2009, he, along with Rick Fienberg, co-founded Galileoscope LLC to develop, manufacture, and distribute high quality low cost telescopes for worldwide promotion of science education and outreach. Dr. Arion is actively involved in promoting technology entrepreneurship education. He founded the ScienceWorks entrepreneurship program at Carthage in 1994, and supported the creation of the Center for Advanced Technology and Innovation. He is also an active member of the Springfield Telescope Makers, the amateur astronomy group that runs the annual Stellafane Convention in Springfield, VT.

Please join us for a pre-meeting dinner discussion at [Changsho](#), 1712 Mass Ave, Cambridge, MA at 6:00pm before the meeting.

### President's Message . . .

For my first ten years as a backyard astronomer (1970-1980), my telescope of choice was an Edmund Scientific 3-inch f/10 "Space Conqueror." Actually, it wasn't a choice. I simply couldn't afford those equatorially-mounted 6- and 8-inch scopes that were on the market at the time. Amazingly, that little scope had a bigger eye on the universe than I ever imagined. I saw all of the planets, a dozen or so comets, and followed the wanderings of some 100 minor planets. Over 1500 double, triple, and multiple stars were resolved, and I glimpsed 200-plus deep-sky objects, including the entire Messier Catalog. I even managed to make over 1000 variable star estimates for the AAVSO, charting stars down to 11th magnitude.

The late 1970s saw the emergence of the Dobsonian telescope. Suddenly, a 10- to 12-inch reflector could be purchased for less than their 6- to 8-inch equatorially-mounted counterparts. I couldn't resist the opportunity to at last own a "real" telescope and picked up a 13.1-inch Coulter Odyssey I. A friend who knew my penchant for small-aperture scopes chided me for selling out and buying the big scope. I jokingly told him the Odyssey was to be mounted on my 3-inch and used as a finder scope!

Since 1980, the Odyssey, and, more recently, a 10-inch f/5 Dob, have been my primary instruments, but I haven't forgotten my small-scope roots. Besides the 3-inch Edmund and a 60mm refractor I picked up at a yard sale, I also enjoy scanning the

skies with an Edmund Astroscan (a 4-inch RFT) and a 4.5-inch f/8 Orion Dob.

My message is simple. Don't sell the small-aperture telescope short. If you still have that small-aperture telescope you bought as a teenager (assuming it's of good quality and not one of those junky "500-power" department store scopes), why not give your big scope a night off and put the little scope to work? You might be pleasantly surprised by what you can see.

March is Messier Marathon month, with the big weekend falling on March 25. Skies permitting, a number of us will be at the Clubhouse field, notching as many of "Charlie's Comet Imposters" as possible. Why not join in the fun?

Clear Skies,

~ Glenn Chaple – President ~

## February Meeting Minutes . . .



\*

There are no Meeting Minutes this month. Heavy snowfall led to the cancellation of the February meeting.

~ Phil Levine - Secretary ~

## Membership Report . . .

I am pleased to welcome our newest members Noah Gilbert and John Freeman. I also want to welcome back former member Daniel Christianson.

As of February 19th, 2017 we have 388 members. This is broken down as follows:

- 184 Regular Members
- 91 Senior Members
- 6 Student Members
- 32 Family Membership covering 101 Members
- 6 Guest Members

~ Chris Elledge – Membership Secretary ~

## Clubhouse Report . . .



(L-R) Paul Cicchetti, Dick Koolish and Dave Prowten shoveling \*

## February 2017 Clubhouse Report

During the month of February the Clubhouse Committee called two work sessions for snow removal. On Saturday, Feb. 11th there were 16 volunteers, and on the following week on Feb. 18th a total of 18 members volunteered. Our efforts were very successful since we were able to open all walkways to the Clubhouse and observatories. In addition, 8 observing pads were cleared with access for vehicles. By month's end Mother Nature helped us tremendously with warm spring-like temperatures, and the grounds are now clear. Mud season has officially begun!

Other projects were put on hold due to snow removal, but we plan to be back on track for the next work session, scheduled for Saturday, March 11th.

Mike Mattei ran a mirror making workshop during the afternoon of Feb. 18th.

Bruce Berger and Jim Gettys report that much progress has been made with respect to the ATMob Research and Imaging Observatory. Two months ago the electronics failed in the Paramount equatorial mount. Both Bruce and Jim have been working with Software Bisque to get the mount back into operation.

- The MKS 4000 controller board has been replaced and the mount is in the final stages of testing.

- The LesveDome control software has also been updated to the latest version and testing is underway.

- The computer was also upgraded to Windows 10 Pro and a 128 Gigabyte solid state boot drive has been added.

We would like to thank Eileen Myers, John and Monique Reed, and Sai Vallabha for preparing lunch for volunteers and handling the clean up.

The following members and friends of the ATMob helped during the month:

Bruce Berger, Marsha Bowman, Paul Cicchetti, Steve Clougherty, Tony Costanzo, Chris Elledge, Skip Gaede, Jim Gettys, Joe Henry, Eric Johansson, Dick Koolish, Phil Levine, John Maher, Mike Mattei, Bill Murphy, Eileen Myers, Rich Nugent, Dave Prowten, John and Monique Reed, James Synge, Ian Synge, Al Takeda, Joe Tansey, Bill Toomey and Sai Vallabha.

**Important Notice:** Due to changing work schedules and commuting times for our optical experts, the Clubhouse **WILL NOT** be open on Thursday evenings. Mirror making sessions will now take place on **Saturday evenings beginning at 7:00 pm. Other times may be scheduled. Check your email on the ATMob-ANNOUNCE list.** We hope that you will have patience with us as we transition to this new time period.



James Synge snow blowing \*

~ Clubhouse Committee Chairs ~  
~ Steve Clougherty, John Reed and Dave Prowten ~

Clubhouse Saturday Schedule		
March 4	Eileen Myers	Rich Nugent
March 11	<b>WORK PARTY # 3</b> Paul Courtemanche & Al Takeda	
March 18	Karl Dean	Mike Hill
March 25	<b>MESSIER MARATHON #2</b> George Paquin & <b>Volunteer Needed</b>	
April 1	Glenn Chaple	Sai Vallabha
April 8	<b>NEAF</b> John Maher & Tom McDonagh	
April 15	<b>WORK PARTY # 4</b> Dave Prowten & Dave Siegrist	
April 22	John Small	John Stodieck
April 29	<b>MESSIER MARATHON # 3</b> Eric Johansson & Bill Toomey	

Clubhouse Evening Schedule	
Friday Night Educational Videos	7:00 pm - 10:30 pm #
Saturday Night Mirror Making	7:00 pm - ##
Saturday Night Observing	7:00 pm - ##
# Closing time is determined by the organizers	
## Closing time is determined by the "A" members on duty	
Note: The Clubhouse is closed on the 2nd Thursday of the month for our monthly meeting in Cambridge.	
Due to inclement weather conditions on Saturday evenings, the "A" members on duty may elect to close the Clubhouse. Please call the Clubhouse at (978) 692-8708 or check for messages posted to ATMOb-ANNOUNCE.	

## Astronomy Day . . .



Image courtesy of the Harvard-Smithsonian Center for Astrophysics



Saturday, April 22, 2017  
12 - 10 pm: Astronomy Day

12 - 4 pm: Cambridge Explores the Universe. Become an astronomer for a day! Enjoy exploration stations that include hands-on activities, telescope tours, ask an astronomer booths, and solar observing. Ideal for kids and fun for all ages.

8 - 10 pm: Star Party. Rooftop viewing through telescopes. Moon, Jupiter, & more! **ATMob Scopes Needed.**

Star party is weather dependent.  
Call 617-495-7461 to check for cancellation.  
<https://www.cfa.harvard.edu/publicevents>

~ Submitted by Dick Koolish ~

## Popscope Event at the Boston Children's Museum . . .



Hello!

I am doing a sidewalk observing event for the "kiddos" at Boston Children's Museum on Friday, March 3rd from 6-8 pm. Want to join? Let me know!

Thanks,

Michael  
[info@popscope.org](mailto:info@popscope.org)

~ Submitted by Michael O'Shea ~

# Sky Object of the Month . . .

March 2017

Courtesy [LVAS Observer's Challenge](#)\*\*\*

M67 (NGC 2682) – Open Cluster in Cancer

Mag. 6.9; Size 25'



M67. Image by Mario Motta M.D.

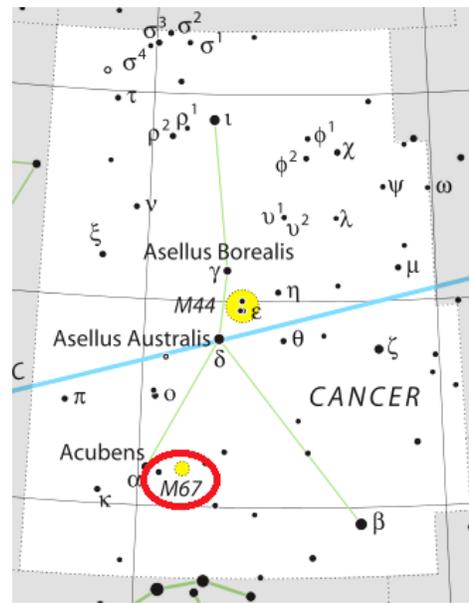
Cancer is home to a pair of Messier open clusters. The first, M44, is the large naked eye group that became one of Galileo's first telescopic targets. The second, M67, is our LVAS Observer's Challenge for March.

Discovered by the German astronomer Johann Gottfried Koehler in 1779 (some sources say he encountered it a few years earlier), M67 is located a little less than 2 degrees west of Acubens (alpha [α] Cancri). Its faintness when compared to M44 is illusory, as its calculated distance of 2600 light years is five times greater than that of the Beehive.

My first encounter with M67 was on the night of January 11, 1978, when I viewed it with a 3-inch f/10 reflector at 30X. I wrote in my log book, "Faint, ghostly, beautiful; Reminds me of M11. Contains three visible stars attended by a soft glow. Glow bursts into speckles of light with averted vision. General funnel shape." More recently, I re-observed M67 with the same scope and a higher magnification of 60X. The cluster was better resolved, with a half dozen faint stars surrounded by another dozen or so averted vision stars.

M67 is visible in binoculars as a hazy patch of light, not unlike the naked eye appearance of M44. As already noted, a small-aperture telescope will reveal a handful of cluster members. Scopes in the 8- to 12-inch range will capture up to 100 of the cluster's 500-plus stars.

Being one of the oldest known open star clusters, with a calculated age of 4 billion years, M67 is of particular interest to professional astronomers. Along with the Hyades, it's the most-studied of any open star cluster.



\*\*\*The purpose of the LVAS Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested, and if you are able to contribute notes, drawings, or photographs, the LVAS will be happy to include them in their monthly summary. If you would like to contribute material, submit your observing notes, sketches, and/or images to either [Roger Ivester](mailto:Roger Ivester) ([rogerivester@me.com](mailto:rogerivester@me.com)) or [Fred Rayworth](mailto:Fred Rayworth) ([fred@fredrayworth.com](mailto:fred@fredrayworth.com)). To find out more, click on the following links: [LVAS Observer's Challenge past reports](#) and/or visit the [Las Vegas Astronomical Society website](#).

~ Glenn Chaple for the LVASS ~

## Free RV Accommodations for the 2017 Total Solar Eclipse . . .

Free RV accommodations for a month near Total Solar Eclipse, August 21, 2017.

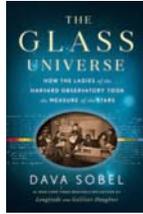
Last summer, I enjoyed three (3) nights of excellent star viewing in the Badlands National Park, South Dakota during their nightly astronomy program. In the summer of 2017, they are offering 30 days of free RV hookup (or apartment housing) for nightly program volunteers. The park is only about 90-120 minutes drive from the total solar eclipse line in eastern Wyoming.

The park has 6 RV hookups, free-of-charge, for the volunteers who stay for a minimum of 30 days and help with the nightly astronomy program. The program averages about 100 guests/night eager to see the stars. Typically, they run a 20-minute laser show tour of the sky, followed by telescope viewing by the guests. The park owns and uses 2 Dobs and 4 Schmidt-Cassegrain telescopes. They also have a Coronado solar telescope that they set up on some afternoons.

If you are even mildly interested, please contact: Chuck Schroll <[cschroll@yahoo.com](mailto:cschroll@yahoo.com)> before April 1, 2017 for further details.

~ Submitted by Jack Richardson ~

## Book Review . . .



I have just finished reading *The Glass Universe: How the Ladies of the Harvard Observatory Took the Measure of the Stars* by Dava Sobel (<https://www.amazon.com/Glass-Universe-Harvard-Observatory-Measure/dp/0670016950/>) and I think many ATMoB members will find this book interesting and enjoyable.

The central characters in the story are the Harvard Observatory collection of glass plates, which many of us have heard about, and the team of workers who used them, most of whom were women. The book traces the story from about 1880 to about 1950. We learn some things about the establishment of the observatories and telescopes that made the plates, and many things about the contributions made by the women who used the plates for various photometry and spectral classification projects.

We learn about the Henry Draper catalogue (and we learn why it's called that). Williamina Fleming produced the initial Draper Catalogue of Stellar Spectra in 1890, including positions and spectral classifications for about 10,000 stars, and then turned her attention to variable stars. Annie Jump Cannon established the spectral type classifications (OBAFGKM) that we still use today, and personally determined the spectral types of some 200,000 stars for the HD catalog. Henrietta Leavitt discovered the period-luminosity relationship for Cepheid variables. The discovery of the first spectroscopic binary star, by Edward Pickering and Antonia Maury, is in here. Cecilia Payne-Gaposchkin became the first person to earn a Ph.D. in astronomy from Radcliffe College (now part of Harvard), with a dissertation showing that hydrogen is the most abundant element in the stars (though she herself at first doubted the result), and eventually became the first female full professor at Harvard. The founding of the AAVSO is in here, and much more.

I also thought the following anecdote from the mid-1890s had a modern resonance: "The telescopes in Cambridge ... faced a dim future as the growing city encroached on the observatory. Municipal plans to widen nearby Concord Avenue for streetcars concerned Pickering, for fear the traffic might rattle the Great Refractor atop its several-hundred-ton supporting pier of granite blocks set in gravel and cement. Already the unwanted glare of electric lights thwarted the instrument's power. It could no longer register faint objects such as small comets and nebulae."

All in all, it's a great story about the astronomical history that happened right in the vicinity where we have our monthly ATMoB meetings.

~ Submitted by Bert Halstead ~

## Lunar X . . .



Lunar X. AT66 Refractor, Canon T1i. 6/23/2015. Cropped image by Al Takeda \*

The Lunar X (also known as the Werner X or the Purbach Cross) is an effect of light and shadow that creates the appearance of the letter 'X' about 6 hours before the first quarter and 6 hours after the last quarter moon. It is formed by the rims of Blanchinus, La Caille, and Purbach craters. It lasts for only a few hours, but the X will appear to float just beyond the terminator for about an hour.

Lunar X approximate start times for 2017.

01/05/2017	0654 UT	0154 EST
02/03/2017	2046 UT	1546 EST
03/05/2017	0956 UT	<b>0456 EST</b>
04/03/2017	2221 UT	<b>1821 EDT</b>
05/03/2017	1010 UT	0610 EDT
06/01/2017	2136 UT	1736 EDT
07/01/2017	0857 UT	<b>0457 EDT</b>
07/30/2017	2033 UT	1633 EDT
08/29/2017	0839 UT	<b>0439 EDT</b>
09/27/2017	2125 UT	1725 EDT
10/27/2017	1051 UT	<b>0651 EDT</b>
11/26/2017	0046 UT	<b>1946 EST (evening 11/25)</b>
12/25/2017	1450 UT	0950 EST

~ Submitted by Julie Kaufmann ~

**February Newsletter Correction:** January Minutes - It should be Bernie Kosicki's Observing Object for January

Editor: \* Photos by Al Takeda unless otherwise noted.

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**April Star Fields DEADLINE**  
**Sunday, March 26<sup>th</sup>**

**Email articles to Al Takeda at**  
[newsletter@atmob.org](mailto:newsletter@atmob.org)

**Articles from members are always welcome.**

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**POSTMASTER NOTE:** First Class Postage Mailed March 4, 2017

Amateur Telescope Makers of Boston, Inc.  
c/o Chris Elledge, Membership Secretary  
99 College Ave  
Arlington, MA 02474  
**FIRST CLASS**

#### EXECUTIVE BOARD 2016-2017

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OBSERVING:	Bruce Berger	(978) 387-4189
NEWSLETTER	Al Takeda	<a href="mailto:newsletter@atmob.org">newsletter@atmob.org</a>

#### PUBLIC OUTREACH

STAR PARTY COORDINATOR:  
Virginia Renehan [starparty@atmob.org](mailto:starparty@atmob.org)

## How to Find Us...

### Web Page [www.atmob.org](http://www.atmob.org)

**MEETINGS:** Held the second Thursday of each month (September to July) at 8:00PM in the Phillips Auditorium, Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge MA. For INCLEMENT WEATHER CANCELLATION see [www.atmob.org](http://www.atmob.org) and check your email on the ATMOB-ANNOUNCE list.

**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 4 from UT.**

Mar 5 First Quarter Moon (Moonset at midnight)  
Mar 12 Full Moon, Daylight Saving Time Begins  
Mar 20 Last Quarter Moon (Moonrise at midnight), Vernal Equinox  
Mar 27 New Moon  
Apr 1 Mercury at greatest eastern elongation, 19-deg. (evening)  
Apr 3 First Quarter Moon (Moonset at midnight)  
Apr 7 Jupiter at opposition  
Apr 11 Full Moon  
Apr 19 Last Quarter Moon (Moonrise at midnight)